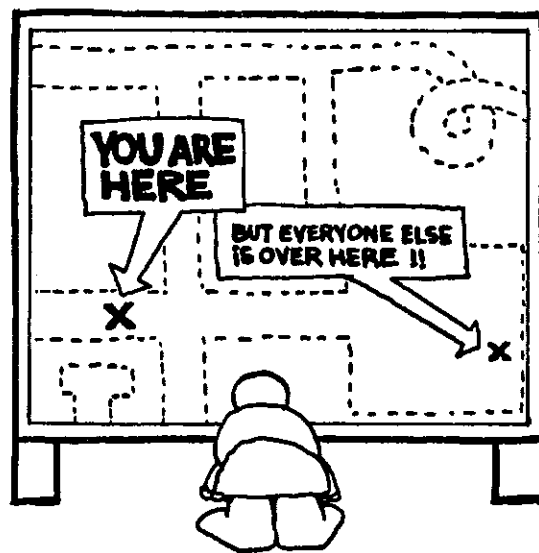


# Friendship Junior High School Sixth Grade Accelerated Math Program

Room 102A (Mr. Lavine)

# 2



2nd Quarter Units of Study

Introduction to Algebra  
Measurement  
Plane Geometry

*Friendship Junior High School  
Sixth Grade Accelerated Math  
Mr. Lavine*

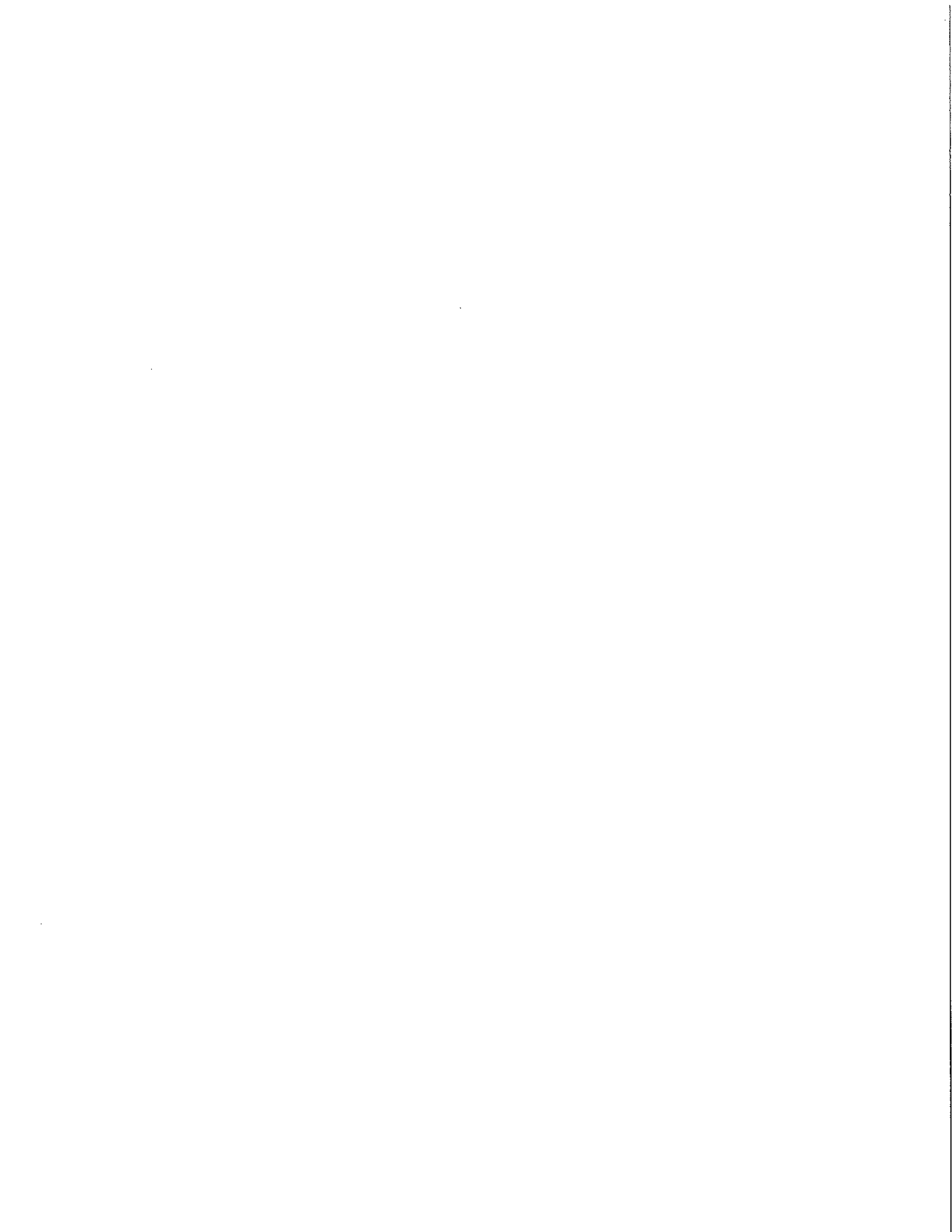
## *Second Quarter Goals and Objectives*

*As we move into the second quarter, students should have already established a regular routine for studying and daily work. The material presented this quarter will set the stage for the higher level algebra and geometry work to be done during the second half of the school year. We will emphasize the following this quarter:*

Introduction to Basic Algebra and Geometry Concepts  
Significantly Expanded Mathematics Vocabulary  
Continued Development of Study Techniques  
Consistent 92% Accuracy Level on Unit Tests  
Disciplined Preparation for a Cumulative Final Exam

*We will end the second quarter with a cumulative exam prior to winter break (even though the quarter officially extends through the third week of January).*

*The vocabulary list at the end of the packet will be included as a component of the final exam. This list represents 75% of the vocabulary we will cover for the year.*



## UNIT 5

# Introduction To Algebra

### 1. NUMBER LINE

Place the following integers on a number line:

- |      |      |
|------|------|
| ① -7 | ④ 0  |
| ② +3 | ⑤ +5 |
| ③ -4 | ⑥ -2 |

### 2. COMPARISONS

Place a comparison sign in the box:

- |                   |                   |
|-------------------|-------------------|
| ① $-4 \square 3$  | ⑤ $-2 \square 3$  |
| ② $-2 \square 0$  | ⑥ $-8 \square 2$  |
| ③ $-7 \square -5$ | ⑦ $-3 \square -6$ |
| ④ $7 \square 4$   | ⑧ $-5 \square -4$ |

### 3. ADDITION & SUBTRACTION

- |                 |                 |
|-----------------|-----------------|
| ① $(+3) + (-2)$ | ⑦ $(+7) - (+8)$ |
| ② $(-2) + (+5)$ | ⑧ $(-6) - (+8)$ |
| ③ $(+3) - (-4)$ | ⑨ $(-5) + (+9)$ |
| ④ $(-7) - (+8)$ | ⑩ $(+4) - (+8)$ |
| ⑤ $(+9) + (+7)$ | ⑪ $(-6) + (+2)$ |
| ⑥ $(-4) - (-3)$ | ⑫ $(-3) - (-4)$ |

- |                               |
|-------------------------------|
| ⑬ $(-3) + (+4) - (-8) - (+2)$ |
| ⑭ $(+7) - (-8) + (-9) - (+1)$ |
| ⑮ $(+4) + (-6) - (-6) - (+4)$ |

### 4. MULTIPLICATION & DIVISION

- |                                  |                     |
|----------------------------------|---------------------|
| ① $(-6) \times (-3)$             | ⑥ $(+9) \div (-3)$  |
| ② $(-3) \times (-8)$             | ⑦ $(-14) \div (-2)$ |
| ③ $(-12) \times (+2)$            | ⑧ $(0) \div (+3)$   |
| ④ $(+8) \times (-4)$             | ⑨ $(-6) \div (-6)$  |
| ⑤ $(-9) \times (+7)$             | ⑩ $(-20) \div (+4)$ |
| ⑪ $(-3) \times (-2) \times (-1)$ |                     |
| ⑫ $(-8) \div (+4) \div (+2)$     |                     |
| ⑬ $(+3) \times (-2) \times (+4)$ |                     |
| ⑭ $(-6) \times (-1) \times (+3)$ |                     |
| ⑮ $(-6) \div (-2) \times (0)$    |                     |



## 5. OPERATIONS

- |                      |                       |
|----------------------|-----------------------|
| ① $(+7) - (-5)$      | ⑥ $(+3) - (-5)$       |
| ② $(-3) + (-2)$      | ⑦ $(+9) \div (-3)$    |
| ③ $(+18) \div (-3)$  | ⑧ $(-12) - (-8)$      |
| ④ $(-4) \times (-4)$ | ⑨ $(-17) \times (-1)$ |
| ⑤ $(-8) - (+7)$      | ⑩ $(+3) \div (0)$     |

## 6. NUMBER SENTENCES

Identify as: Open or Closed, Equation or Inequality, True or False (if Closed):

- ①  $23 + 18 = x$
- ②  $9 - 8 > 2$
- ③  $a \geq 22 - 17$
- ④  $57 + 29 = 85$
- ⑤  $a = 79 - 68$
- ⑥  $m + 39 \geq 78$
- ⑦  $a - 12 \leq 40$
- ⑧  $56 + 7 < 63$
- ⑨  $84 \leq 47 + f$
- ⑩  $36 + 10 = 46$
- ⑪  $25 > 15 + 11$

...WELL! YOU CERTAINLY MADE A FOOL OUT OF YOURSELF LAST NIGHT!



- ⑫  $c \leq 29 - 17$
- ⑬  $18 \leq 6 \times 3$
- ⑭  $n = 57 + 36$
- ⑮  $y - 25 > 40$
- ⑯  $78 > 96 - 12$

## 7. ORDER OF OPERATIONS

- |                 |                                       |
|-----------------|---------------------------------------|
| ① $(-3)^2$      | ⑯ $(-3) + (-2) \times (-1)$           |
| ② $-3^2$        | ⑰ $(-6) - (-2) \div (-2) + (-3)$      |
| ③ $-2^3$        | ⑱ $(-4) \times (-2) - (-5)$           |
| ④ $(-2)^3$      | ⑲ $(-3)^2 + (-2)^0 \times (-2)$       |
| ⑤ $-5^3$        | ⑳ $-2^2 \times (-3)^2 + (-1)$         |
| ⑥ $-5^2$        | ㉑ $(-1)^3 - 2^3 \div (-2) - (-1)^0$   |
| ⑦ $(-5)^2$      | ㉒ $5^2 - 5^2 - (-5)^2$                |
| ⑧ $-2^0$        | ㉓ $-2^0 + [-(2)^2]$                   |
| ⑨ $(-2)^0$      | ㉔ $\frac{-5^0 - (-6)}{(-2)^2 - (-1)}$ |
| ⑩ $-(-2)$       | ㉕ $\frac{-3^2 + (-1)}{-2^2 - (-4)}$   |
| ⑪ $-[-(-3)]$    | ㉖ $\frac{-4 + (-2)^3 + 12}{-3^2 + 4}$ |
| ⑫ $-[-(-2)^2]$  |                                       |
| ⑬ $-[-(-3)]^2$  |                                       |
| ⑭ $-[+(-5)]$    |                                       |
| ⑮ $-(-(-(-3)))$ |                                       |

## 8. EVALUATING EXPRESSIONS

$$a = -2 \quad b = -1 \quad c = 2$$

- |               |                           |
|---------------|---------------------------|
| ① $a + b$     | ⑨ $3a - 2b^2c$            |
| ② $ab$        | ⑩ $2(a - b)$              |
| ③ $a - c$     | ⑪ $3c - 2(2a + b)$        |
| ④ $2b + c$    | ⑫ $3ac - (a - b)$         |
| ⑤ $3a - b$    | ⑬ $a^2 - 2a^2$            |
| ⑥ $2a - 4c$   | ⑭ $b^2 - b^3$             |
| ⑦ $2ab - b$   | ⑮ $\frac{2a - 3b}{a + c}$ |
| ⑧ $3a^2 - bc$ |                           |

$$\textcircled{16} \frac{-4ac - a^2b}{2a}$$

Order of operations review:

$$\textcircled{17} (-1)^2 - (-3)^3 \div (-3)$$

$$\textcircled{18} -[-(-3)] - (-1)$$

$$\textcircled{19} -2^2 - (-2)^2 \times (-7)^0$$

$$\textcircled{20} (-1)^7 - (-1)^4 - (-1)^3$$

### 9. SIMPLIFYING EXPRESSIONS

$$\textcircled{1} 3a + 2b - 5a + 7b$$

$$\textcircled{2} x - 3y + 5 - 2y - 1$$

$$\textcircled{3} n - 3m - 2n + 4$$

$$\textcircled{4} a + 4b - 3a + 2a - 1$$

$$\textcircled{5} 2(a+b)$$

$$\textcircled{6} 3(x-y) + 2x$$

$$\textcircled{7} 2a + 3ab - 3a + ab$$

$$\textcircled{8} 4a - 2(a+2b)$$

$$\textcircled{9} 3 - 4(a-1) + 2a$$

$$\textcircled{10} 2a - 3a(b+2) - ab$$

$$\textcircled{11} 2x - 3x(2-y) - x$$

$$\textcircled{12} 2x(x+3)$$

$$\textcircled{13} 3(a+b) + 2a(a+1)$$

$$\textcircled{14} 4x(2x-3y) + 2xy$$

$$\textcircled{15} 3x^2 - x(2x+1)$$

$$\textcircled{16} a^2 - 2a(3a+b) - ab$$

Skill review (continued)

Evaluating expressions:  
 $x = -1$   $y = 3$   $z = -2$

$$\textcircled{17} 3xy - 2z \quad \textcircled{19} x^2yz - xy$$

$$\textcircled{18} 4x^2 - 2y + z^3 \quad \textcircled{20} 2(x-y) - xz$$

Order of operations:

$$\textcircled{21} -2^3$$

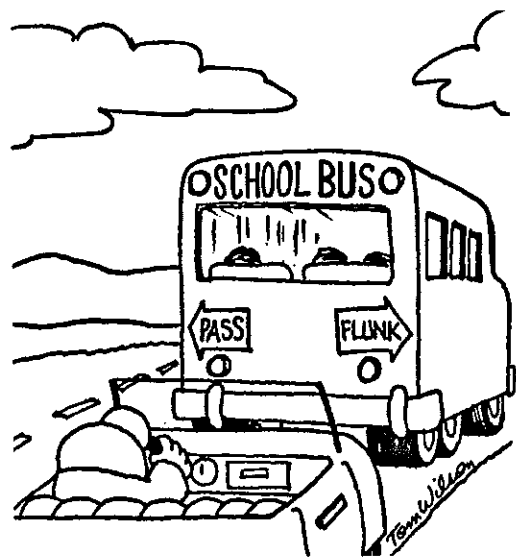
$$\textcircled{22} (-2)^3$$

$$\textcircled{23} (-2)^4$$

$$\textcircled{24} -2^0$$

$$\textcircled{25} (-2)^0$$

$$\textcircled{26} -(-2)^2$$



### 10. MORE PRACTICE

Order of operations:

$$\textcircled{1} -[-(-3)]^2 - (-1)$$

$$\textcircled{2} (-3) - (-2)^2 \times (-1)^3$$

Evaluating expressions:  
 $a = -1$   $b = -3$   $c = -2$

$$\textcircled{3} a - 2ab$$

$$\textcircled{4} 3a^2 - 2ac^2$$

$$\textcircled{5} \frac{2a^2 + c}{3b}$$

Simplifying expressions:

- ⑥  $2(a+b) - 3b + 3$
- ⑦  $2x^2 - x(3-x)$
- ⑧  $4 - 3(a-1) + a$
- ⑨  $2x - 2x(3x+y) - xy$
- ⑩  $4x^2 - 2x(2x+y) + 2xy$

### 11. REVIEW

Place on a number line:

- ①  $-3$     ②  $-5$     ③  $+4$

Compare:

- ④  $-3 \square -5$     ⑥  $-8 \square -6$
- ⑤  $0 \square -2$     ⑦  $-2 \square -3$

Integer operations:

- ⑧  $(-6) + (-8)$     ⑫  $(-3) - (-2)$
- ⑨  $(-3) \div (+3)$     ⑬  $(-4) \div (0)$
- ⑩  $(-7) \times (-2)$     ⑭  $(-6) + (+7)$
- ⑪  $(-6) - (+8)$     ⑮  $(+6) \times (-2)$

Identify as: Open or Closed, Equation or Inequality, True or False:

- ⑯  $4a - 3 \leq 4$
- ⑰  $x - 8 = 14$
- ⑱  $6 - (-6) \leq 0$
- ⑲  $2 - (-2)^2 = -2$
- ⑳  $2y - 3y > -4$

Order of operations:

- ⑳  $-3^3$     ㉑  $(-2)^3 - (-2)^4$
- ㉒  $(-3)^2$     ㉓  $\frac{(-3) - (-2)}{(-4)^0 + (-1)^3}$
- ㉔  $-(-3)^2$
- ㉕  $-[-(-3)]$
- ㉖  $-3^0$
- ㉗  $(-3) \times (-2) - (-1) \times (-2)$
- ㉘  $(-1)^2 - (-3) \div (+1) - (-2)$
- ㉙  $\frac{(-4)^2 - (-2)^4}{-3^2}$

Evaluating expressions:  
 $x = -2$      $y = -1$      $z = 3$

- ㉚  $2x + y$     ㉛  $2y - 3y^2$
- ㉜  $3x - z$     ㉝  $x - (2x + y)$
- ㉞  $y + 2z$     ㉟  $3xy z$
- ㊱  $2x - 3x^2y$     ㊲  $2x - y/xz$
- ㊳  $x^2 - y^2$     ㊴  $x - x^2 - x^3$

Simplifying expressions:

- ㊵  $3a - 2b - 4a + 3b$
- ㊶  $4x - 3 - 2x - 5$
- ㊷  $3x^2 - 2x + 2x^2 + 5x$
- ㊸  $2(a + 2b)$
- ㊹  $3a - 2(a + 1)$
- ㊺  $2x^2 - x(x + y)$
- ㊻  $3a - 2a(3 - 3a)$
- ㊼  $4 - 2a(b + 3) + 3ab$
- ㊽  $a(a + b) - b(2a + 2)$
- ㊾  $x^2 - 2x(x + 1) - x$

## UNIT 6

# Measurement

### 1. METRIC LENGTH

Choose the appropriate unit of length:

- ① Length of a shoe
- ② Height of a flagpole
- ③ Distance from Rome to Paris
- ④ Width of a car
- ⑤ Your height
- ⑥ Height of a mountain
- ⑦ Width of a thumbnail
- ⑧ Height of a doorway
- ⑨ Height of a tree
- ⑩ Length of a river
- ⑪ Length of an eyelash
- ⑫ Length of a sofa
- ⑬ thickness of a nickel
- ⑭ Circumference of the earth
- ⑮ Length of a bowling alley

Choose the appropriate measurement:

- ⑯ Height of the Statue of Liberty  
a) 45 km b) 45 m c) 450 m
- ⑰ Width of a safety pin  
a) 10 mm b) 10 cm c) 10 m

- ⑱ Length of a football  
a) 28 m b) 28 cm c) 28 mm
- ⑲ Distance from Seattle to Salt Lake City  
a) 1390 m b) 1390 km c) 1390 cm
- ⑳ Thickness of a paperclip  
a) 1 mm b) 1 cm c) 1 m

### 2. METRIC WEIGHT

Choose the appropriate unit:

- |               |                    |
|---------------|--------------------|
| ① jet         | ⑧ grain of sand    |
| ② penny       | ⑨ pair of scissors |
| ③ truck       | ⑩ banana           |
| ④ cat         | ⑪ TV set           |
| ⑤ postcard    | ⑫ t-shirt          |
| ⑥ wrist watch | ⑬ person           |
| ⑦ locomotive  | ⑭ piece of paper   |



SOMETIMES I THINK  
THAT IF I EVER LOST  
MY MIND...  
...I'D NEVER MISS IT  
!!



Choose the appropriate measurement:

- ⑮ Hammer  
a) 750 mg b) 750g c) 750 kg
- ⑯ Can of tuna  
a) 210 mg b) 210g c) 210 kg
- ⑰ Vitamin tablet  
a) 250 mg b) 250g c) 250 kg
- ⑱ Tiger  
a) 190 mg b) 190g c) 190 kg
- ⑲ Blue whale  
a) 136 g b) 136 kg c) 136t
- ⑳ Pair of shoes  
a) 1 kg b) 10 kg c) 50 kg

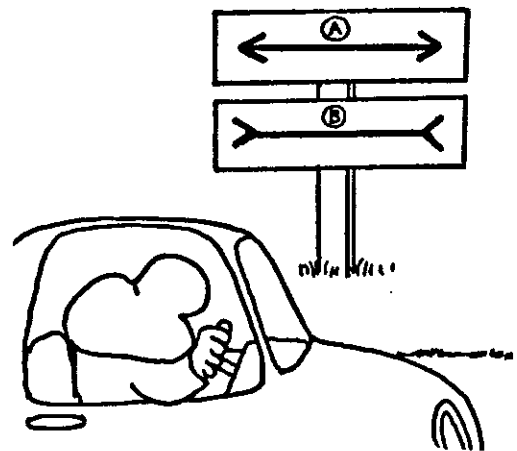
### 3. METRIC CAPACITY

Choose the appropriate unit:

- ① Glass of water
- ② Water for a fish tank
- ③ Paint for the house
- ④ Water in Lake Michigan
- ⑤ Can of soda
- ⑥ Gas for the car
- ⑦ Bottle of chocolate syrup
- ⑧ Oil in tanker truck
- ⑨ Bottle of cough medicine
- ⑩ Lemonade for a party

Choose the appropriate measurement:

- ⑪ Bottle of salad dressing  
a) 240 ml b) 240 l
- ⑫ Water in a birdbath  
a) 8 ml b) 8 l
- ⑬ Carton of orange juice  
a) 960 ml b) 960 l
- ⑭ Pitcher of lemonade  
a) 2 ml b) 2 l
- ⑮ Barrel of crude oil  
a) 160 ml b) 160 l



### 4. CONVERSIONS

- ① 54 l = ml
- ② 5.2 kg = g
- ③ .141 m = mm
- ④ 800g = kg
- ⑤ 14.1 cm = mm
- ⑥ .56 kl = ml
- ⑦ 84 mm = m
- ⑧ 2.34 kl = l
- ⑨ .05 km = cm
- ⑩ 500 mg = g

- ⑪  $1.853 \text{ mm} = \text{km}$       ⑲  $2.35 \text{ m} = \text{mm}$   
 ⑫  $17.2 \text{ mm} = \text{cm}$       ⑳  $20.5 \text{ g} = \text{kg}$   
 ⑬  $2000 \text{ cm} = \text{km}$       ㉑  $.056 \text{ km} = \text{cm}$   
 ⑭  $2.3 \text{ l} = \text{ml}$           ㉒  $205 \text{ g} = \text{t}$   
 ⑮  $57 \text{ g} = \text{kg}$             ㉓  $2.38 \text{ ml} = \text{l}$   
 ⑯  $.13 \text{ t} = \text{kg}$            ㉔  $5876 \text{ cm} = \text{m}$   
 ⑰  $2.57 \text{ cm} = \text{mm}$       ㉕  $.045 \text{ kl} = \text{ml}$   
 ⑱  $1900 \text{ kl} = \text{l}$

### 5. TEMPERATURE

- ① Water boils:  $\text{ }^\circ\text{C}$   $\text{ }^\circ\text{F}$   
 ② Water freezes:  $\text{ }^\circ\text{C}$   $\text{ }^\circ\text{F}$   
 ③ Body temperature:  $\text{ }^\circ\text{C}$   $\text{ }^\circ\text{F}$

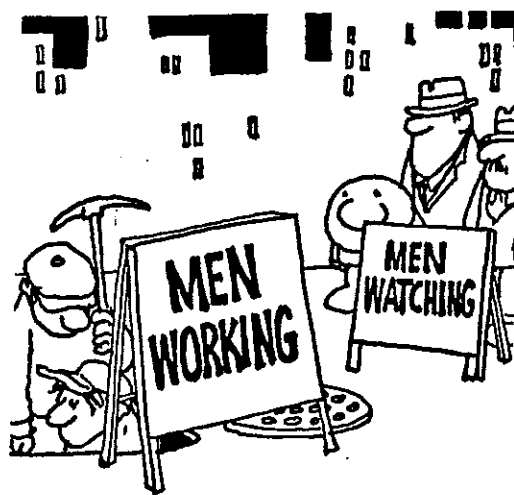
Conversions:

- ④  $38^\circ\text{F} = \text{ }^\circ\text{C}$           ⑩  $-5^\circ\text{F} = \text{ }^\circ\text{C}$   
 ⑤  $64^\circ\text{C} = \text{ }^\circ\text{F}$           ⑪  $50^\circ\text{C} = \text{ }^\circ\text{F}$   
 ⑥  $20^\circ\text{F} = \text{ }^\circ\text{C}$           ⑫  $-10^\circ\text{F} = \text{ }^\circ\text{C}$   
 ⑦  $8^\circ\text{C} = \text{ }^\circ\text{F}$           ⑬  $-20^\circ\text{C} = \text{ }^\circ\text{F}$   
 ⑧  $155^\circ\text{F} = \text{ }^\circ\text{C}$         ⑭  $90^\circ\text{F} = \text{ }^\circ\text{C}$   
 ⑨  $-12^\circ\text{C} = \text{ }^\circ\text{F}$         ⑮  $10^\circ\text{F} = \text{ }^\circ\text{C}$

### 6. COMPARATIVE PURCHASING

Choose the better buy:

- ① a)  $10 \text{ l}$  for  $\$16.25$   
    b)  $4 \text{ l}$  for  $\$6.75$   
 ② a)  $5 \text{ kg}$  for  $\$3.50$   
    b)  $3 \text{ kg}$  for  $\$2.75$   
 ③ a)  $400 \text{ g}$  for  $\$1.50$   
    b)  $2 \text{ kg}$  for  $\$6.00$   
 ④ a)  $4 \text{ m}$  for  $\$6.25$   
    b)  $250 \text{ cm}$  for  $\$4.00$   
 ⑤ a)  $77 \text{ mm}$  for  $\$.79$   
    b)  $4 \text{ m}$  for  $\$37.50$   
 ⑥ a)  $150 \text{ g}$  for  $\$2.20$   
    b)  $2.5 \text{ kg}$  for  $\$23.20$   
 ⑦ a)  $15 \text{ cm}$  for  $\$.75$   
    b)  $250 \text{ mm}$  for  $\$1.40$   
 ⑧ a)  $.25 \text{ kg}$  for  $\$2.88$   
    b)  $300 \text{ g}$  for  $\$3.10$   
 ⑨ a)  $12 \text{ cm}$  for  $\$2.20$   
    b)  $300 \text{ mm}$  for  $\$6.00$   
 ⑩ a)  $3 \text{ l}$  for  $\$1.70$   
    b)  $500 \text{ ml}$  for  $\$.35$   
 ⑪ a)  $2 \text{ kg}$  for  $\$6.55$   
    b)  $700 \text{ g}$  for  $\$4.00$



- ⑫ a) 800 cm for \$38.00  
b) 6m for \$29.00
- ⑬ a) 5kg for \$ 8.12  
b) 1500g for \$ 1.90
- ⑭ a) 1200 mm for \$4.50  
b) 1.6 m for \$ 6.00
- ⑮ a) 9ℓ for \$ 8.60  
b) .03kℓ for \$27.00



### 7. MEASURES OF CENTRAL TENDENCY

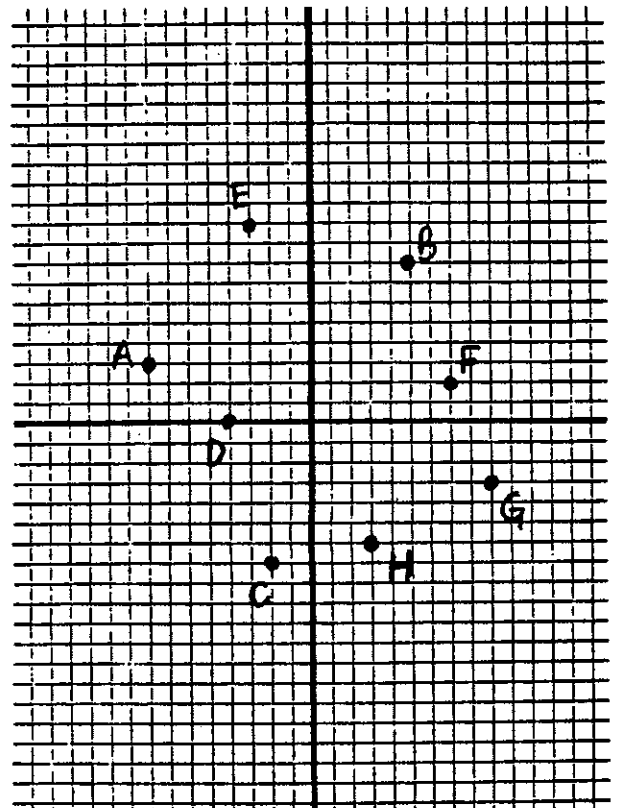
For the indicated data;  
determine the mean, median,  
mode, and range:

- ① 6 8 3 9 4 8 11
- ② 5 8 2 10 5 2 3 9 4
- ③ 18 22 15 9 13 25
- ④ 6 6 9 9 9 9
- ⑤  $2\frac{1}{2}$   $3\frac{1}{2}$  2 4  $2\frac{1}{2}$  2  $4\frac{1}{2}$
- ⑥  $5\frac{1}{3}$   $6\frac{1}{2}$  4  $5\frac{1}{2}$   $2\frac{2}{3}$

- ⑦  $6\frac{3}{4}$   $3\frac{4}{5}$   $3\frac{1}{2}$   $3\frac{7}{8}$   $3\frac{1}{4}$   $5\frac{9}{10}$
- ⑧  $2\frac{7}{8}$   $2\frac{7}{8}$   $2\frac{7}{8}$   $2\frac{7}{8}$   $2\frac{7}{8}$   $2\frac{7}{8}$
- ⑨ 3.5 4.25 5.75 3.5 4.375 3.875
- ⑩ 5 8 2.3 4 5.1 3.6 2 8 2.3
- ⑪ 3.6 4.8 2.9 3.6 5.7 8.4
- ⑫ .045 , 135 , 25 , 135 , 045
- ⑬ -5 0 -3 +7 -4 -5
- ⑭ -11 -12 0 +4 -12 0 -9 -6
- ⑮ -6 +3 -4 -8 -6 +2 -3
- ⑯ -7 -8 -11 +9 -8 -7 +20 0

### 8. COORDINATE GRAPHING

Indicate the ordered pairs  
for each point:



On a sheet of graph paper, plot the following points:

- |             |             |
|-------------|-------------|
| I (-3, 4)   | N (6, -4)   |
| J (-10, -6) | O (-3, -12) |
| K (-5, 0)   | P (-8, 5)   |
| L (3, 9)    | Q (4, -12)  |
| M (0, 7)    | R (5, 0)    |

Indicate quadrant for each of these points:

- |             |            |
|-------------|------------|
| ① (-6, 5)   | ⑥ (-3, 5)  |
| ② (3, -8)   | ⑦ (-4, -4) |
| ③ (7, 9)    | ⑧ (6, 6)   |
| ④ (8, -12)  | ⑨ (0, -2)  |
| ⑤ (-8, -10) |            |

Indicate the term for:

- ⑩ the horizontal axis
- ⑪ the vertical axis
- ⑫ the point (0, 0)

### 9. REVIEW

Choose the appropriate metric measure:

- ① weight of a person
- ② capacity of a gas tank
- ③ distance from Chicago to Detroit
- ④ length of a piece of chalk
- ⑤ weight of a paper clip
- ⑥ capacity of an eye dropper

choose the best measure for each:

- ⑦ Blood in the human body  
a) 4ml b) 4l c) 4kl
- ⑧ container of cottage cheese  
a) 233 mg b) 233 g c) 233 kg
- ⑨ Length of a bathtub  
a) 150cm b) 150 km c) 150m
- ⑩ Large uncarved pumpkin  
a) 10kg b) 10mg c) 10g



Metric conversions:

- |                 |                 |
|-----------------|-----------------|
| ⑪ 13m = cm      | ⑮ 80cm = mm     |
| ⑫ 1.68 kg = g   | ⑯ 25 l = kl     |
| ⑬ .025t = g     | ⑰ 40,000mg = kg |
| ⑭ 4.13 mm = m   | ⑱ 570,000g = t  |
| ⑲ 52 mm □ 5.7cm |                 |
| ⑳ 200 l □ .2 kl |                 |
| ㉑ 95 cm □ 9.5 m |                 |

- ②② 4.5 kg □ .0045 t  
 ②③ 3500 mg □ 35g

Metric temperature:

- ②④ Water boils:  $\_\_\text{ }^\circ\text{C}$   $\_\_\text{ }^\circ\text{F}$   
 ②⑤ Water freezes:  $\_\_\text{ }^\circ\text{C}$   $\_\_\text{ }^\circ\text{F}$   
 ②⑥ Body temp:  $\_\_\text{ }^\circ\text{C}$   $\_\_\text{ }^\circ\text{F}$   
 ②⑦  $15^\circ\text{C} = \text{ }^\circ\text{F}$       ③⑩  $20^\circ\text{F} = \text{ }^\circ\text{C}$   
 ②⑧  $75^\circ\text{F} = \text{ }^\circ\text{C}$       ③①  $-6^\circ\text{C} = \text{ }^\circ\text{F}$   
 ②⑨  $33^\circ\text{F} = \text{ }^\circ\text{C}$       ③②  $0^\circ\text{C} = \text{ }^\circ\text{F}$

Comparative purchasing:

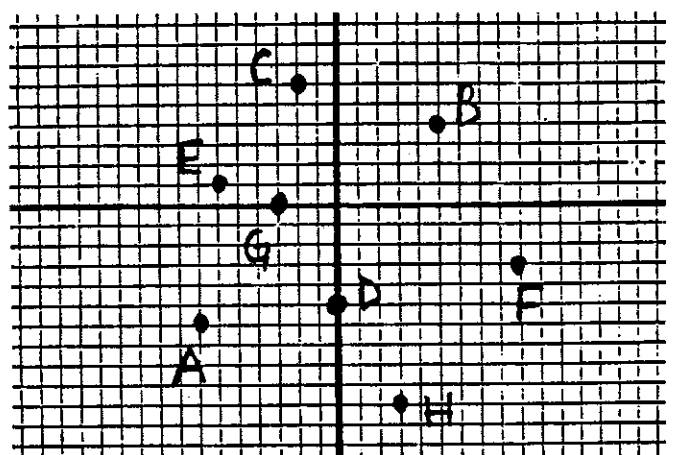
- ③③ a) 200g for \$4.75  
 b) 3.5 kg for \$90.25  
 ③④ a) .6m for \$3.40  
 b) 175 cm for \$8.50  
 ③⑤ a) .15 kg for \$8.12  
 b) 6000 mg for \$.36  
 ③⑥ a) 250mm for \$2.30  
 b) 54cm for \$4.80



Determine mean, median, mode and range:

- ③⑦ 20 10 15 10 25 30  
 ③⑧ 4 6 8 6 3 2 10 1  
 ③⑨  $2\frac{1}{2}$  3  $1\frac{1}{3}$   $2\frac{1}{2}$   $4\frac{2}{3}$   
 ④⑩  $3\frac{1}{4}$  2  $4\frac{3}{4}$   $3\frac{1}{4}$   $3\frac{3}{4}$  5  
 ④① 2.75 3.5 2.85 3.5  
 ④② 1.25 2.25 3.65 4 2.75  
 ④③ -6 -2 3 -2 7  
 ④④ -3 -8 3 0 -2 1

Indicate the ordered pairs:



Plot each on graph paper:

- I (-4, 8)      K (-3, -10)      M (8, 1)  
 J (0, -7)      L (6, 0)      N (4, -5)

Indicate the quadrant:

- ④⑤ (-3, -7)      ④⑦ (-2, 5)  
 ④⑥ (4, 9)      ④⑧ (4, -12)






















Name the following:

- ④⑨ point (0, 0)  
 ⑤① vertical axis, horizontal axis

## UNIT 7

# Plane Geometry

### 1. GEOMETRIC TERMS

	Point	location without dimensions
	Line	straight set of connected points extending to inf.
	Line segment	section of a line with a definite start/end point
	Ray	section of a line extending to infinity in one direction
	Angle	rotation measured in degrees
	Plane	flat surface in two dimensions
	Intersection	points in common between geometric figures
	Parallel lines	lines in the same plane that never intersect
	Perpendicular lines	lines intersecting to form right angles
	Right angle	angle that measures 90 degrees
	Curve	set of connected points in a plane
	Closed curve	curve with common start/end pt. (can intersect)
	Simple closed curve	closed curve that does not intersect itself
	Polygon	simple closed curve made entirely of line segments
	Regular polygon	polygon with all sides and angles congruent
	Vertex	point where an angle is formed (plural: vertices)
	Acute angle	angle measuring less than 90° and greater than 0°
	Obtuse angle	angle measuring less than 180° and greater than 90°
	Protractor	instrument used to measure angles
	Degree	unit of measure
	Circle	simple closed curve with all points an equal distance from the center point



diameter

distance between two points on a circle passing through the center point



radius

distance from the center point to any point on a circle



circumference

distance around a circle



pi

ratio of circumference to diameter in a circle



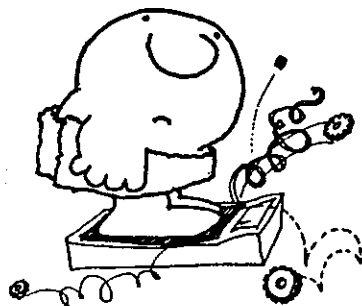
perimeter

distance around a polygon



line of symmetry

line dividing a region into congruent parts



## 2. POLYGONS



triangle

three sided polygon



quadrilateral

four sided polygon



pentagon

five sided polygon



hexagon

six sided polygon



heptagon

seven sided polygon



octagon

eight sided polygon

## 3. TRIANGLES



scalene triangle

triangle with no sides congruent



isosceles triangle

triangle with two sides congruent



equilateral triangle

triangle with all sides congruent



acute triangle

triangle with all acute angles



obtuse triangle

triangle with one obtuse angle



right triangle

triangle with one right angle




equiangular triangle


triangle with all angles congruent

Definitions of geometric terms continued


# 4. QUADRILATERALS

 quadrilateral

four sided polygon

 trapezoid

quadrilateral with one pair of opposite sides parallel

 parallelogram


quadrilateral with two pairs of opposite sides parallel

 rhombus

parallelogram with all sides congruent

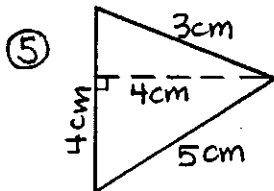
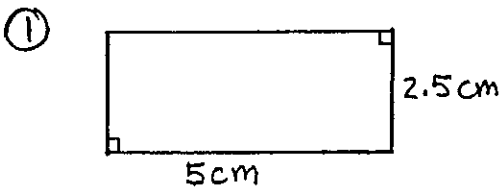
 rectangle

parallelogram with four right angles

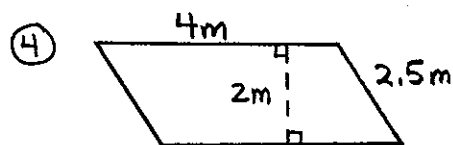
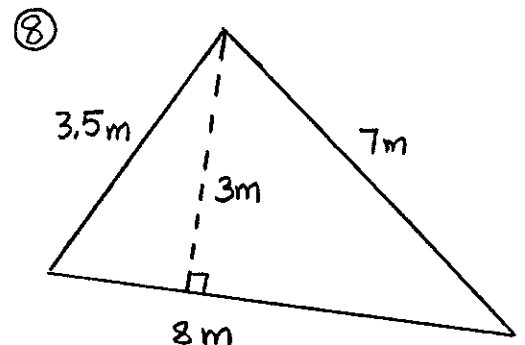
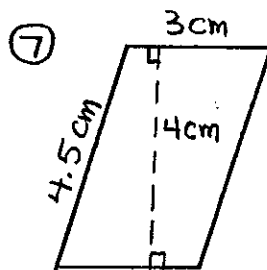
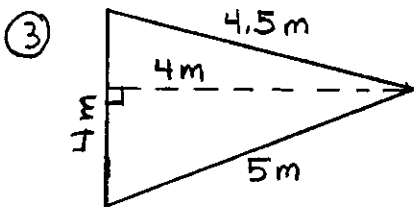
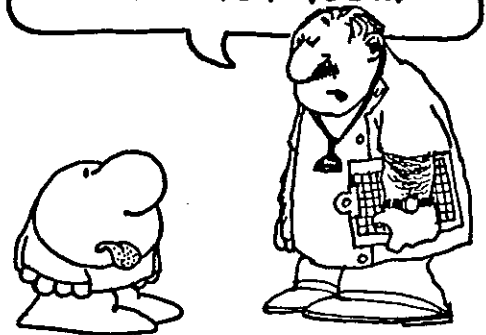
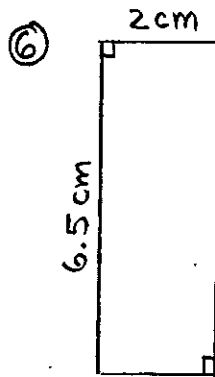
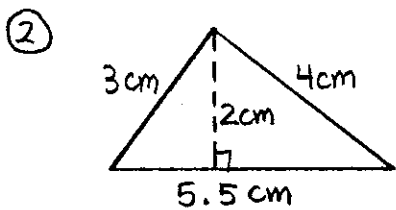
 square

rectangle with all sides congruent

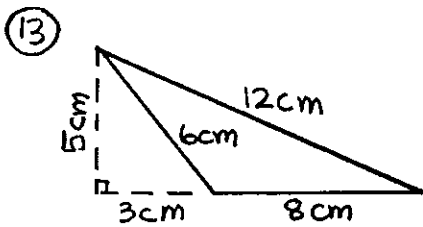
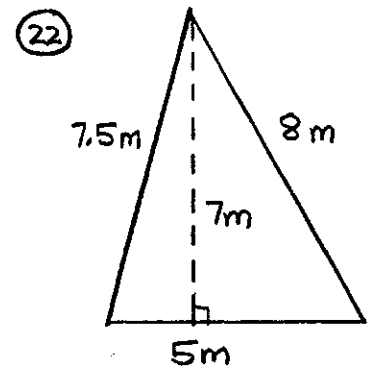
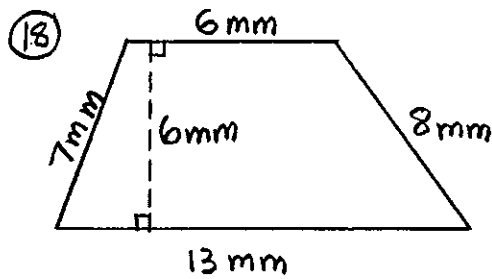
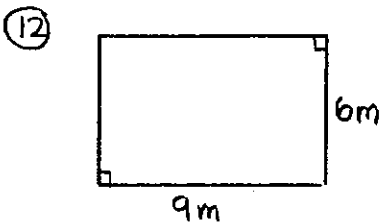
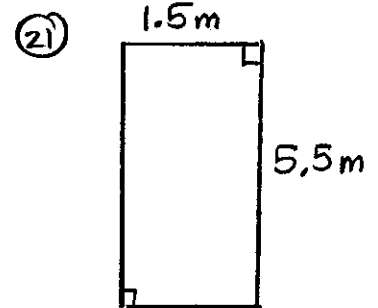
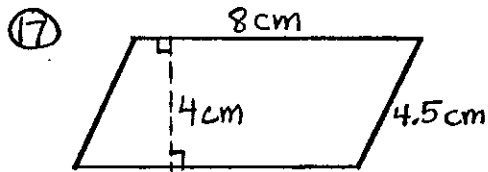
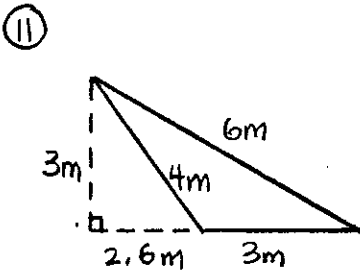
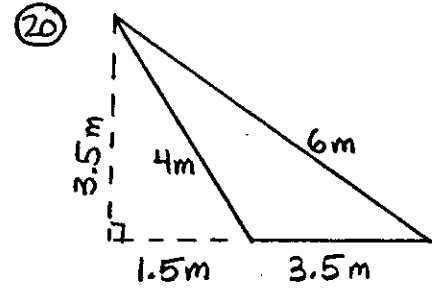
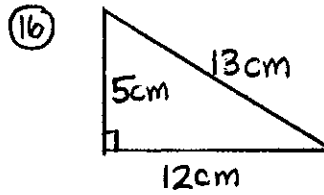
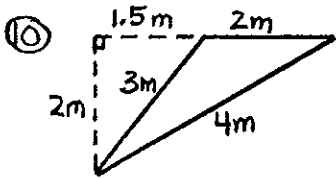
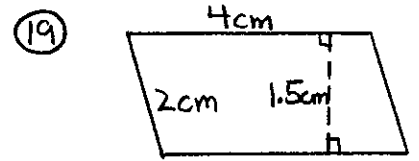
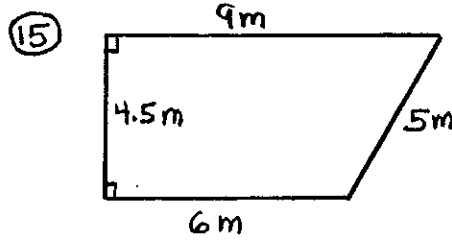
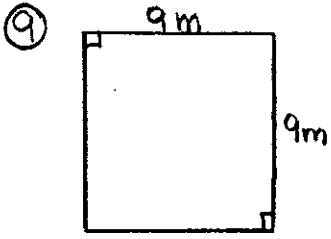
# 5. AREA & PERIMETER



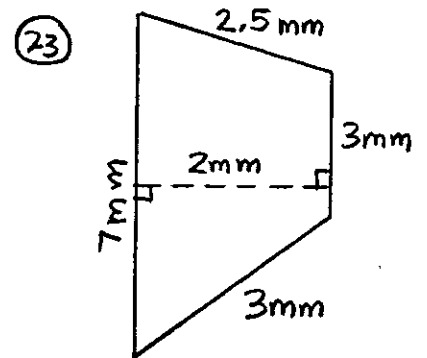
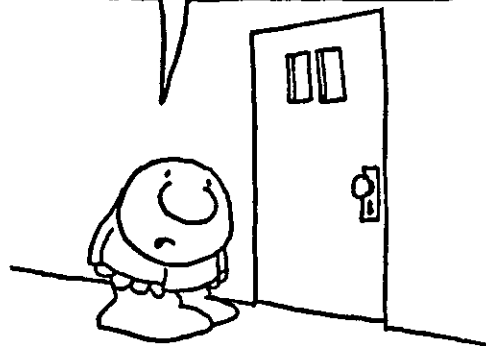
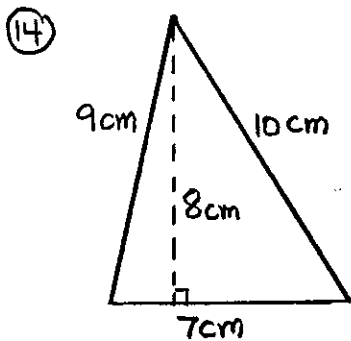
HOW BAD IS IT?... LET ME PUT IT THIS WAY... I WOULDN'T PUT THAT BACK IN YOUR MOUTH IF I WERE YOU...

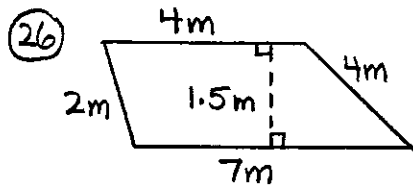
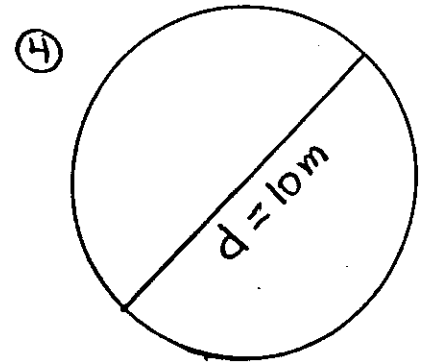
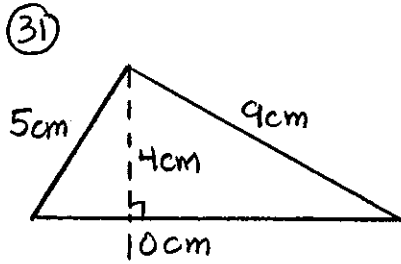
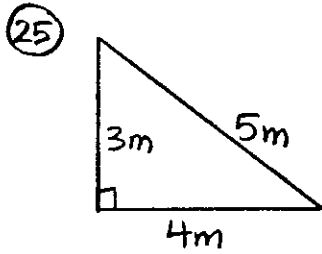
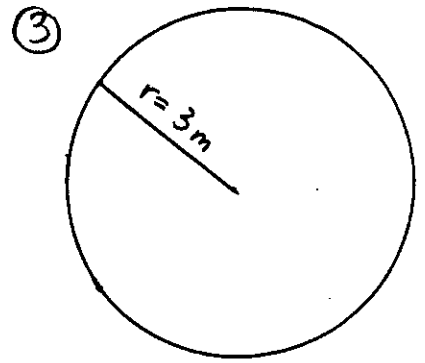
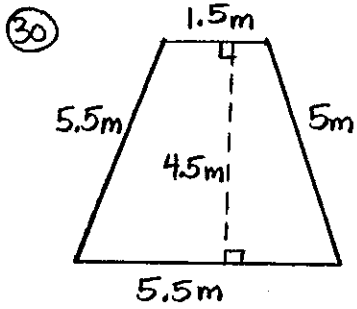
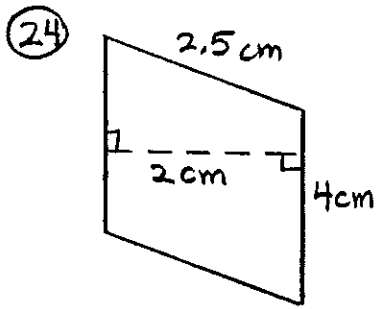




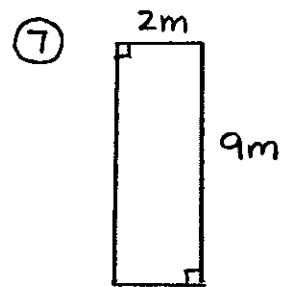
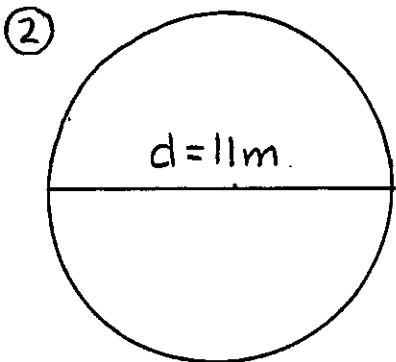
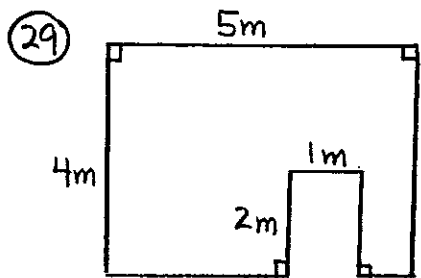
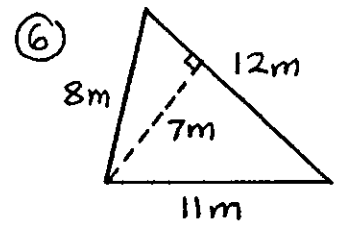
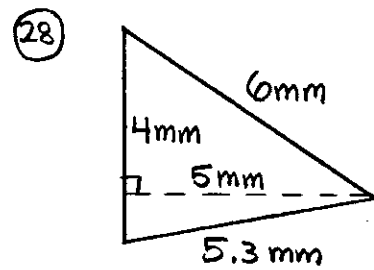
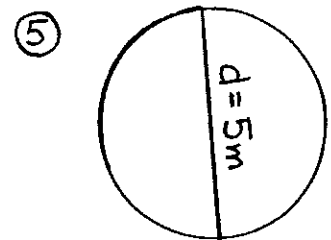
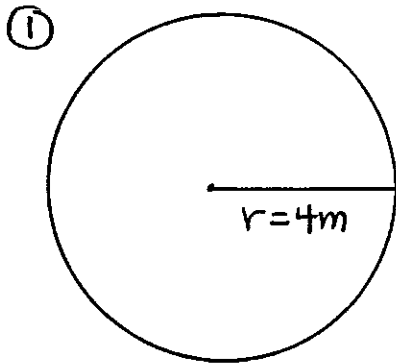
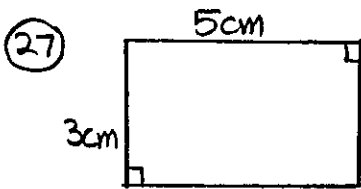


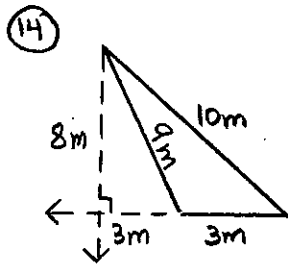
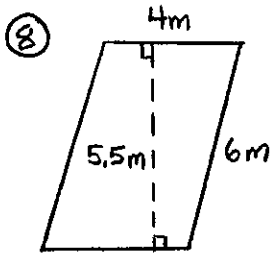
OPPORTUNITY KNOCKED  
AT MY DOOR ONCE....  
...SLIPPED ON MY WELCOME MAT,  
AND SUED ME FOR \$75,000.





**6. CIRCLES & POLYGONS**



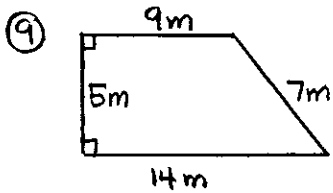


$$C = 2\pi r (\text{part}) + 4r$$

$$(2)\pi(3) \left(\frac{135}{360}\right) + (4)(3)$$

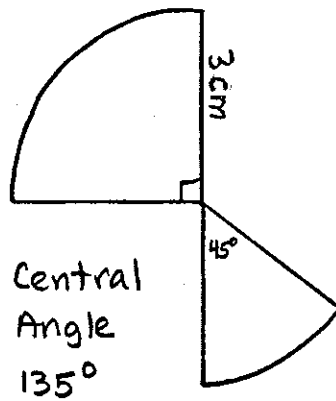
$$\frac{9}{4}\pi + 12 \text{ cm or}$$

$$2.25\pi + 12 \text{ cm}$$



## 7. SECTORS

Sample:



Central Angle  
 $135^\circ$

3.14 Method

$$A = \pi r^2 (\text{part})$$

$$(3.14)(3)^2 \left(\frac{135}{360}\right)$$

$$10.5975 \text{ cm}^2$$

$$C = 2\pi r (\text{part}) + 4r$$

$$(2)(3.14)(3) \left(\frac{135}{360}\right) + 4(3)$$

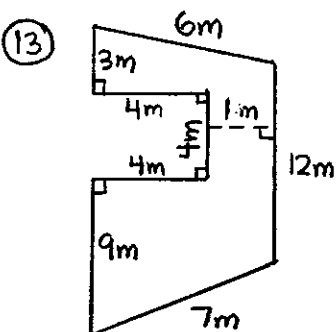
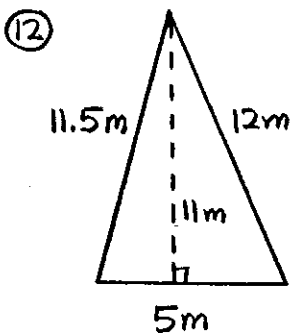
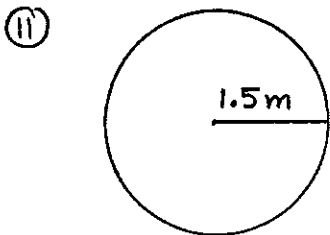
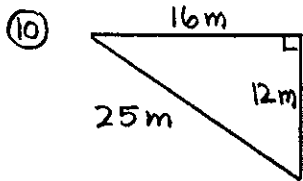
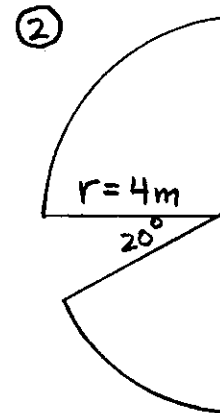
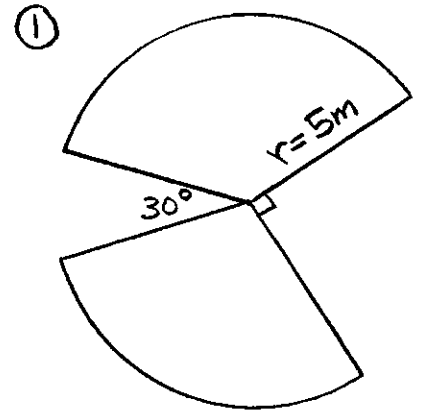
$$19.065 \text{ cm}$$

$\pi$  method

$$A = \pi r^2 (\text{part})$$

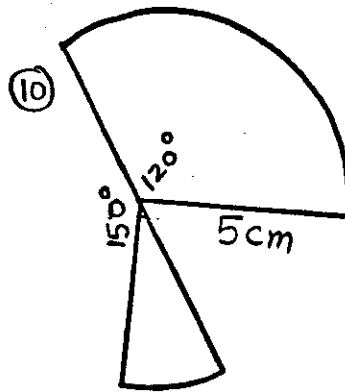
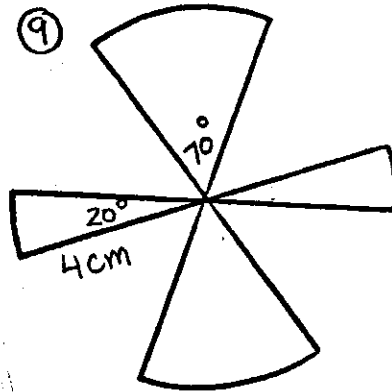
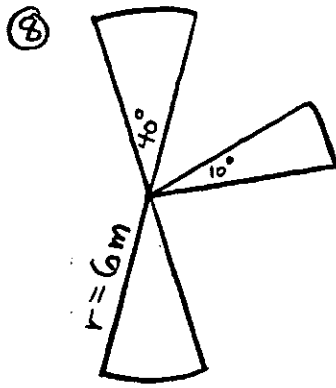
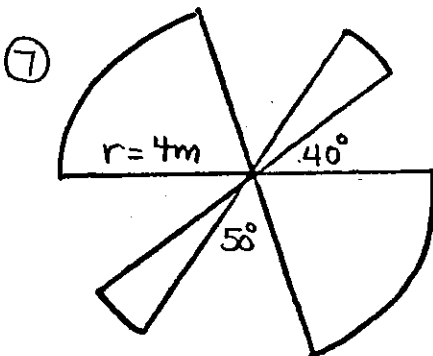
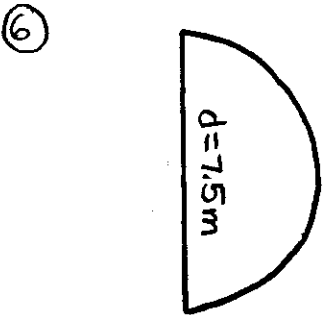
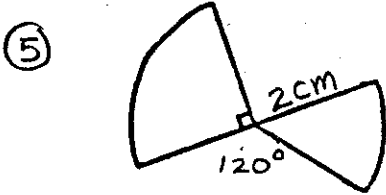
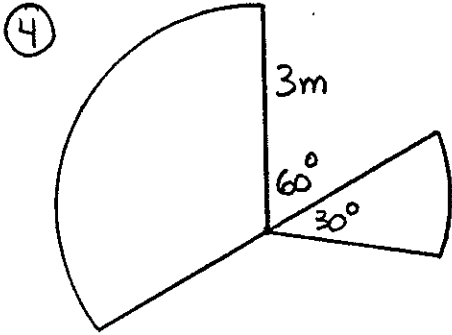
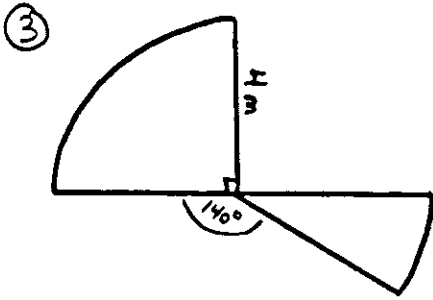
$$\pi (3)^2 \left(\frac{135}{360}\right) = \frac{27}{8}\pi \text{ cm}^2$$

$$3.375\pi \text{ cm}^2$$

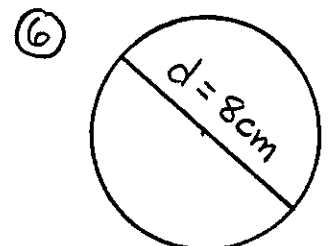
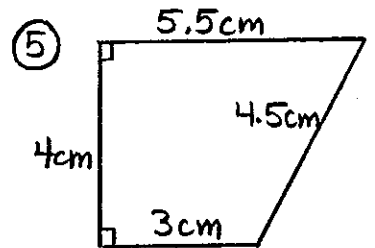
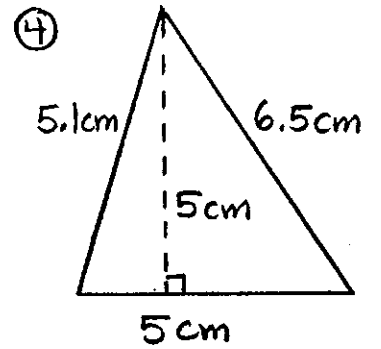
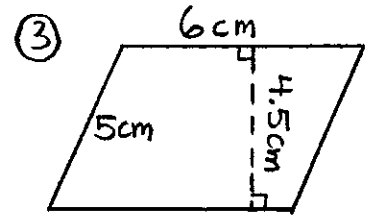
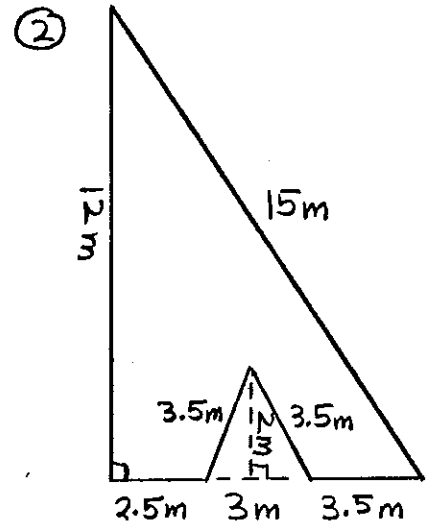
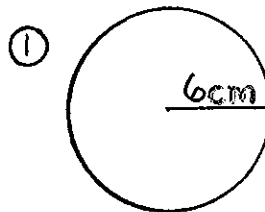


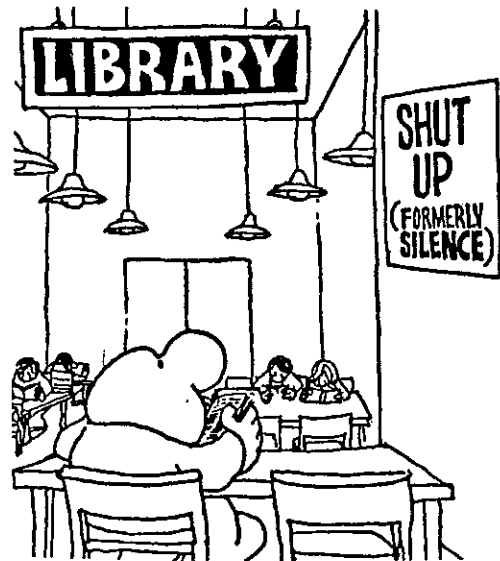
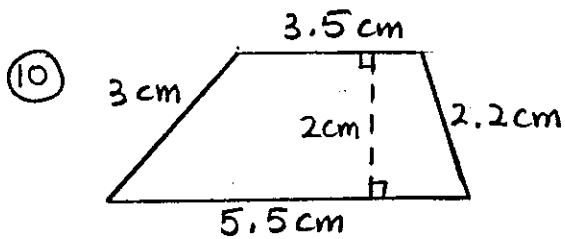
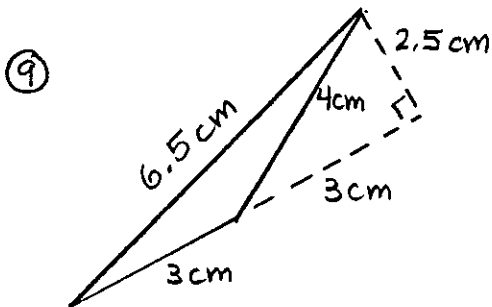
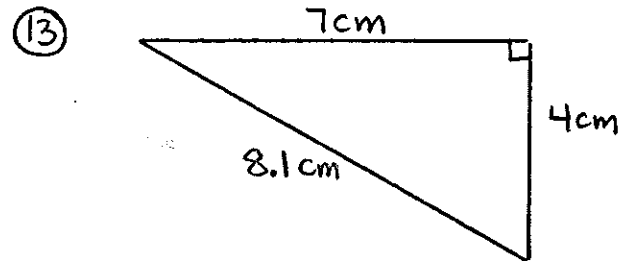
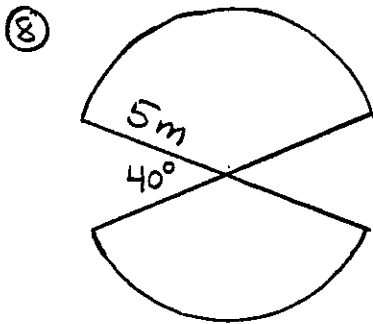
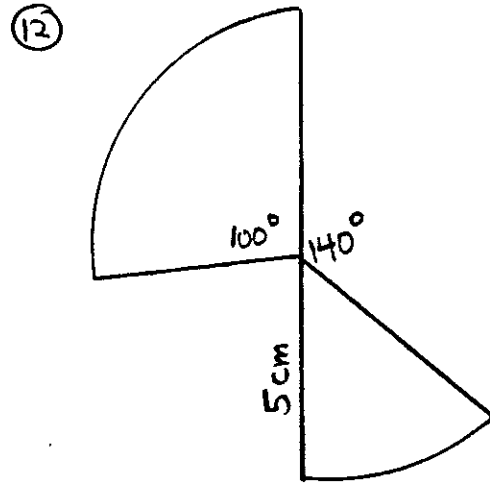
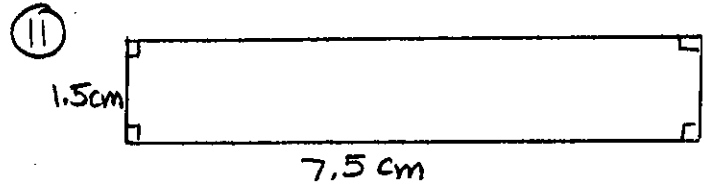
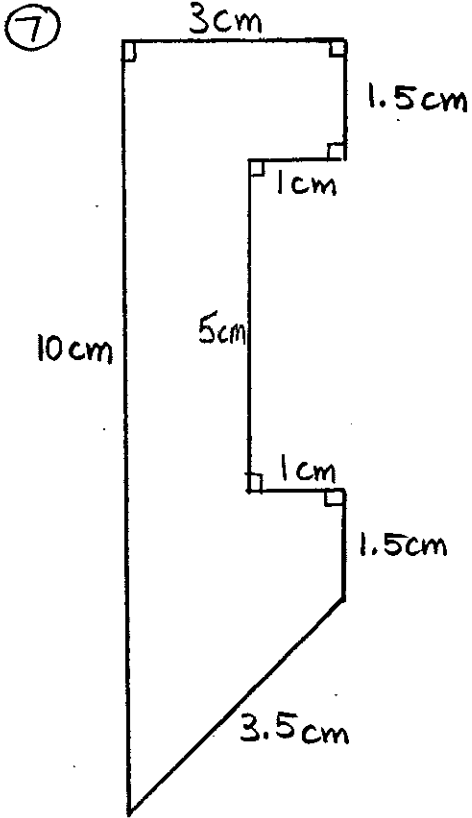
...SOMETIMES I THINK  
THERE'S NOT ENOUGH  
LIFE IN MY LIFE !!





**8. REVIEW**





## QUARTER 2

# Cumulative Review

### REVIEW #1

In the number 34.0684,  
what is the value of:

- ① 6                      ② 8

Write in words:

- ③ 2,500,012.053  
④ 4,044,200.0016

Round 56,299.9513 to  
the nearest:

- ⑤  $10^2$                       ⑦  $1/100$   
⑥  $10^4$                       ⑧  $1/10$

Exponents:

- ⑨  $4^3$                       ⑩  $6^0$

Expand:

- ⑪ 3,054.006  
⑫ 20,010.05

Rename (two answers):

- ⑬  $3/5$                       ⑭  $7 \div 4$

List Primes / Composites:

- ⑮ Primes 16-20      ⑯ Composites 25-30

Give the prime factorization:

- ⑰ 300                      ⑱ 1000

List factors of:

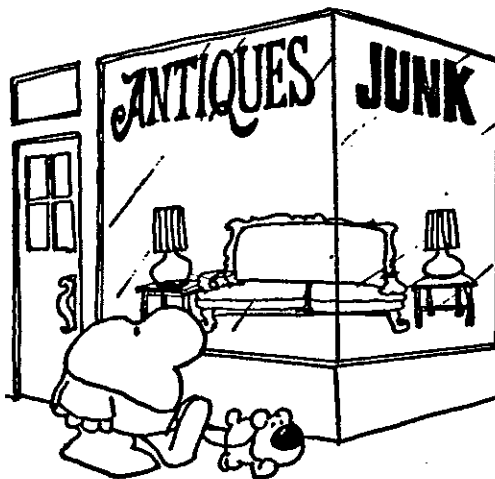
- ⑲ 20                      ⑳ 28

Indicate the first five  
multiples:

- ㉑ 12                      ㉒ 9

Indicate GCF / LCM:

- ㉓ GCF 15,30      ㉔ LCM 15,25



Rename:

- ②5  $2\frac{1}{3}$  = improper fraction  
②6  $1\frac{6}{6}$  = mix. numeral (reduced)

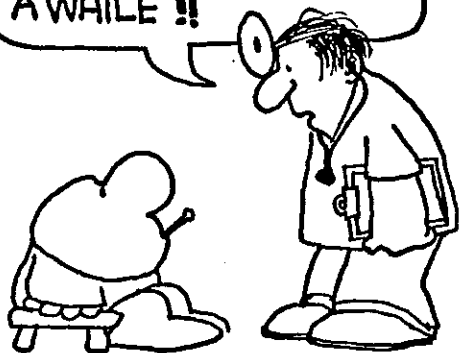
Compare:

- ②7  $1\frac{3}{7} \square \frac{5}{3}$       ②8  $\frac{9}{4} \square 2\frac{1}{3}$

Complex fraction:

- ②9  $\frac{\left(\frac{1}{3}\right)}{\left(\frac{2\frac{1}{2}}{\frac{1}{4}}\right)}$       ③0  $\frac{\left(\frac{1}{3}\right)}{\left(\frac{1\frac{1}{2}}{\left(\frac{2}{3}\right)}\right)}$

YOU SHOULD BE ALL RIGHT  
... JUST AVOID THE  
ENVIRONMENT FOR  
A WHILE !!



Compare:

- ③1  $.63 \square .598$       ③2  $.491 \square .48$

Decimal operations (no calc.)

- ③3  $.05 \times .12$       ③5  $7 - 2.34$   
③4  $.102 \times .04$       ③6  $12.1 - .645$

③7 Round to  $10^2$ :  $.23 \div 1.2$

③8 Round to  $10^2$ :  $.65 \div 3.1$

Powers of ten:

③9  $3.64 \times 10^3$       ④0  $25.7 \div 10^2$

Equivalence:

- ④1  $.15 = \text{frac.}$       ④5  $\frac{3}{4} = \text{percent}$   
④2  $\frac{3}{11} = \text{dec.}$       ④6  $.025 = \text{percent}$   
④3  $2.4 = \text{mix. num.}$       ④7  $\frac{5}{6} = \text{percent}$   
④4  $6\% = \text{dec.}$       ④8  $.5\% = \text{fraction}$

Problem solving:

- ④9 Saved \$19. This was the result of a 15% discount. What was the purchase price?  
⑤0 30 students in the class. 20% are boys. How many girls?  
⑤1 What percent of 9 is 4?  
⑤2 12 is 75% of what?  
⑤3 Arnie did  $\frac{1}{3}$  of the work on the first day and  $\frac{2}{5}$  on the second day. How much work is left?  
⑤4  $\frac{2}{3}$  of the players played in the first half of the game.  $\frac{3}{5}$  of them scored. What fraction of the team scored?

Divisibility (2,5,10,3,4,6,9):

55) 158,292      56) 9,135

Fraction operations:

57)  $1\frac{3}{8} + 3\frac{2}{3}$       61)  $4\frac{1}{2} \times 12$   
58)  $2\frac{4}{5} + 5\frac{3}{4}$       62)  $\frac{18}{35} \times \frac{14}{27}$   
59)  $8 - 2\frac{1}{3}$       63)  $2\frac{2}{5} \div \frac{24}{25}$   
60)  $4\frac{1}{5} - 2\frac{2}{3}$       64)  $6\frac{1}{3} \div 3$

Change repeating decimals to fractions:

65)  $.0\overline{45}$       66)  $.2\overline{1}$

Metric measurement:

- 67) What unit should be used to measure the weight of a calculator?  
68) What unit should be used to measure the length of a pencil?

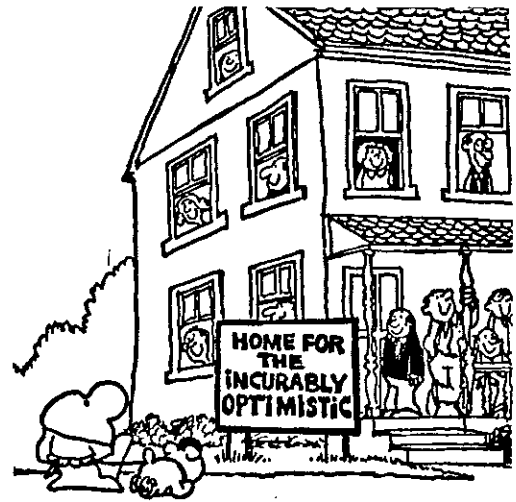
Metric conversions:

69)  $.08 \text{ kg} = \text{g}$       70)  $240 \text{ cm} = \text{km}$   
71)  $15^\circ \text{ F} = \text{ }^\circ \text{ C}$       72)  $30^\circ \text{ C} = \text{ }^\circ \text{ F}$

Comparative purchasing:

- 73) a) 8 l for \$3.45  
b) 400 ml for \$.25

- 74) a) 250 g for \$.88  
b) 1.5 kg for \$5.28



Integers (no calculators):

75)  $-3 \square -8$       78)  $(-12) + (-7)$   
76)  $-5 \square -1$       79)  $(-3) \times (-6)$   
77)  $(-8) - (-9)$       80)  $(7) \times (-2)$

Measures of central tendency (Mean, median, mode, range):

- 81) Data: 4.1 6.3 5.2  
4.1 3.8 5.5  
82) Data: -6 4 -2 -3

Indicate the quadrant that contains:

- 83)  $(-5, 3)$   
84)  $(-6, -7)$



Order of operations:

(85)  $-3^2 - (-2)^3 \times (-4)^0$

(86)  $\frac{-2^2 \times (-3)}{-3} - (-3)^2$

Eq / Ineq, Op / Cl, T / F:

(87)  $5a - 2 \leq 3$       (88)  $-5^2 = 8 - (-17)$

Evaluating expressions:

$a = -3$     $b = 2$     $c = -1$

(89)  $2a - 3c^3b$       (90)  $a^2c - 2(a+b)$

Simplifying expressions:

(91)  $2a^2 - 3a(a - 2b) + ab$

(92)  $3xy - 2x(x - y) + 4$

Geometry review:

(93) How many degrees in a hexagon?

(94) What is the intersection of two planes?

(95) Define: rhombus

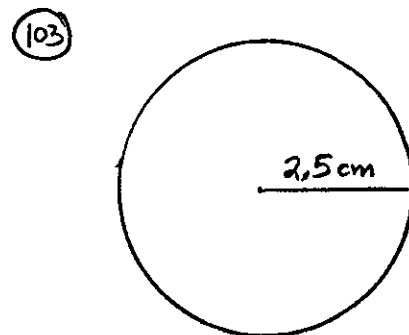
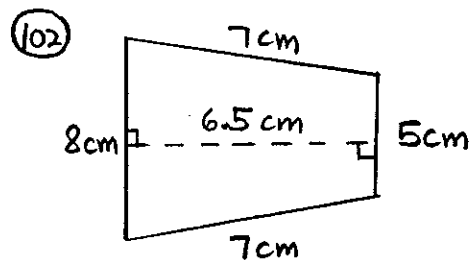
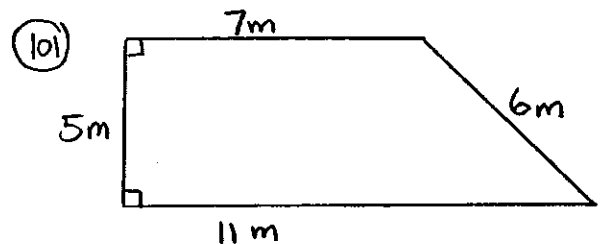
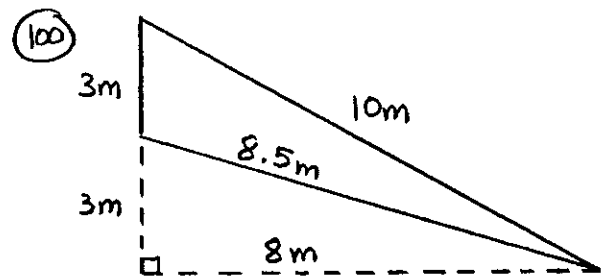
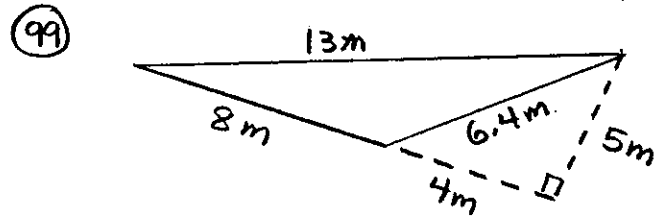
(96) Define: vertex

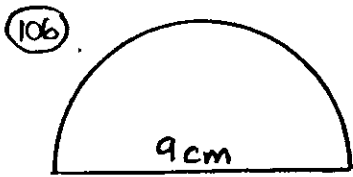
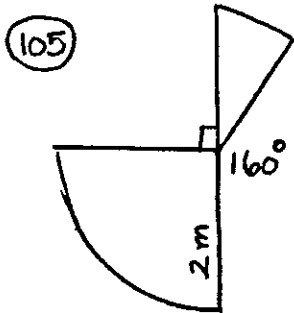
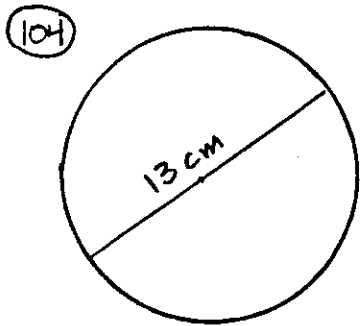
(97) (T/F) A rectangle is a trapezoid and parallelogram.

(98) (T/F) The sum of the angles of an isosceles

triangle is equal to the sum of the angles of a scalene triangle.

Area, Perimeter / Circumference:





**REVIEW #2**

In 28,200.6 determine the value of:

- ① 8
- ② 6

...OF COURSE NO ONE TAKES YOU SERIOUSLY!!  
...YOU'RE A CARTOON !!!

Write in words:

- ③ 8,515,300.107
- ④ 16,003,040.085

Round 84,579.981 to the nearest:

- ⑤  $10^2$
- ⑥  $10^4$
- ⑦  $1/10$
- ⑧  $10^2$

Exponents:

- ⑨  $10^5$
- ⑩  $5^3$

Expand:

- ⑪ 2,000,500.03
- ⑫ 109,000.006

Rename:

- ⑬  $7\overline{19} = \_ \div \_ , \text{frac.}$
- ⑭  $5 \div 7 = \_ \overline{\_} , \text{frac.}$

List Primes/Comp:

- ⑮ Primes 30-35
- ⑯ Composites 5-10

Prime factorization:

- ⑰ 800
- ⑱ 640

List factors:

- ⑲ 30
- ⑳ 32

First 5 multiples:

- ㉑ 11
- ㉒ 7

GCF/LCM:

- ㉓ GCF of 8, 12
- ㉔ LCM of 8, 12

Rename:

- ㉕  $3\frac{4}{5} = \text{improper frac.}$
- ㉖  $18/4 = \text{mix. numeral reduced}$

Compare:

- ㉗  $2\frac{2}{3} \square \frac{13}{5}$
- ㉘  $\frac{9}{5} \square 1\frac{9}{11}$

Complex fractions:

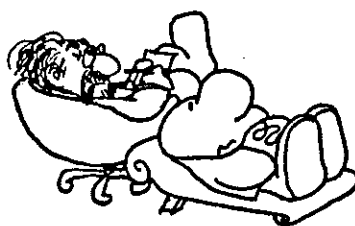
- ㉙  $\frac{\frac{3}{4}}{\frac{2}{\frac{1}{3}}}$
- ㉚  $\frac{\frac{2}{3}}{\frac{1}{\frac{1}{4}}}$

Compare:

- ㉛  $.24 \square .238$
- ㉜  $1.08 \square 1.078$

Decimal operations:  
(No calculators)

- ㉝  $.14 \times .003$
- ㉞  $9 - .045$
- ㉟  $1.2 \times .011$
- ㊱  $13.3 - 2.57$



37) Round to  $\frac{1}{10}$ :  $.6 \div 2.3$

38) Round to  $\frac{1}{10^2}$ :  $.7 \div .15$

Powers of ten:

39)  $45 \times 10^2$     40)  $2.13 \div 10^2$

Equivalence:

41)  $.24 = \text{frac.}$     45)  $\frac{1}{6} = \text{percent}$

42)  $5\frac{1}{2} = \text{dec.}$     46)  $2.025 = \text{percent}$

43)  $1.08 = \text{mix.num.}$     47)  $2\frac{1}{9} = \text{percent}$

44)  $4.5\% = \text{dec.}$     48)  $.25\% = \text{frac.}$

Problem solving:

49) Original price of stereo is \$250. Purchase price is \$200. Rate of discount?

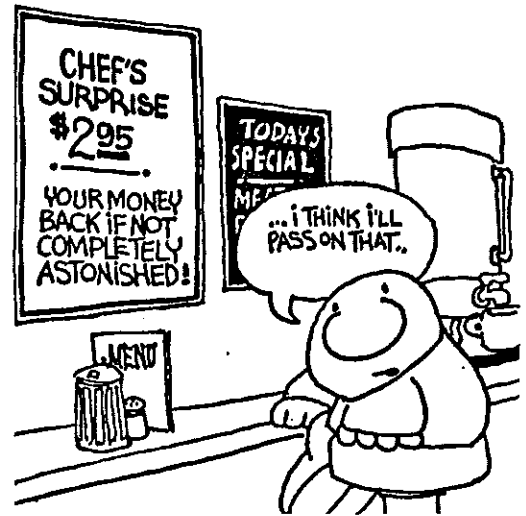
50) 5% of the students are absent. 12 students are absent. How many present?

51) 9 is what percent of 25?

52) 15 is 25% of what?

53)  $\frac{1}{3}$  of the cars are new.  $\frac{3}{4}$  of the new cars have Illinois plates. What fraction are new but do not have Illinois plates?

54) Each of 6 people do an equal share of  $\frac{2}{3}$  of an hours work. How much does each do?



Divisibility (2, 5, 10, 3, 4, 6, 9)

55) 2,540,052    56) 3,200,015

Fraction operations:

57)  $2\frac{1}{2} + 5\frac{4}{7}$

61)  $2\frac{2}{3} \times 9$

58)  $3\frac{2}{3} + 6\frac{4}{5}$

62)  $12\frac{1}{25} \times 5\frac{1}{36}$

59)  $9 - 1\frac{7}{8}$

63)  $1\frac{3}{4} \div 1\frac{1}{6}$

60)  $6\frac{2}{5} - 1\frac{3}{4}$

64)  $2\frac{3}{5} \div 5$

Change repeating decimals to fractions:

65)  $.01\bar{2}$

66)  $.3\bar{4}$

Metric measurement:

67) what unit should be used to measure the distance from Chicago to St. Louis?

68) what unit should be used to measure gas in the car's tank?

### Metric conversions:

- (69)  $2.4 \text{ cm} = \text{m}$       (71)  $-9^{\circ}\text{C} = \text{ }^{\circ}\text{F}$   
(70)  $50 \text{ kg} = \text{g}$       (72)  $10^{\circ}\text{F} = \text{ }^{\circ}\text{C}$

### Comparative purchasing:

- (73) a)  $15 \text{ kg}$  for  $\$.45$   
b)  $3000 \text{ g}$  for  $\$.85$   
(74) a)  $220 \text{ mm}$  for  $\$.35$   
b)  $60 \text{ cm}$  for  $\$.25$

### Integers (no calculators):

- (75)  $-2 \square -9$       (78)  $(-8) + (-6)$   
(76)  $-6 \square -5$       (79)  $(-6) \times (4)$   
(77)  $(-7) - (-9)$       (80)  $(-9) \times (-3)$



### Measures of central tendency: (mean, median, mode, range)

- (81) Data:  $1.4 \ 1.9 \ 2.5 \ .6 \ 1.9$   
 $1.2$   
(82) Data:  $-3 \ 0 \ 7 \ -6 \ -6 \ 7$

### Identify the quadrant:

- (83)  $(7, 6)$       (84)  $(-2, 8)$

### Order of operations:

- (85)  $-2^2 - (-1)^0 \times (-3)^2$   
(86)  $\frac{-1^3 - (-1)^2}{-1 + (-1)^0} - (-2)^3$

### Eq/Ineq, Op/CI, T/F:

- (87)  $4 - (-7) \leq 11$       (88)  $2n - 3 = 6$

### Evaluating expressions:

$x = -1 \ y = -2 \ z = -3$

- (89)  $3xy - y^2$       (90)  $2x^2y - xyz$

### Simplifying expressions:

- (91)  $2xy - 3x(y-2) - 1 + x$   
(92)  $2x^2 - x(y+2x) + xy$

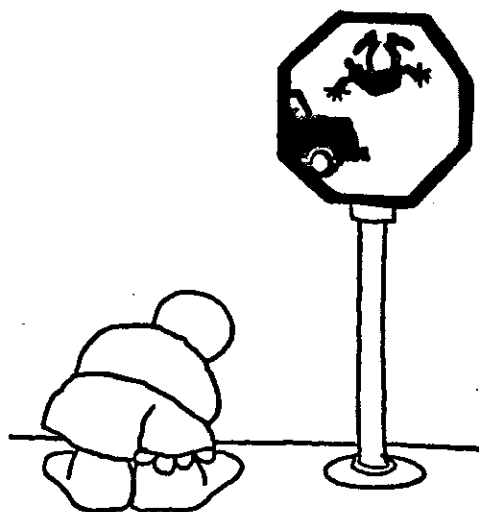
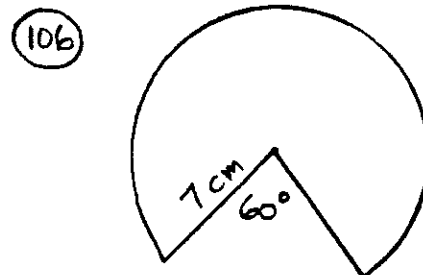
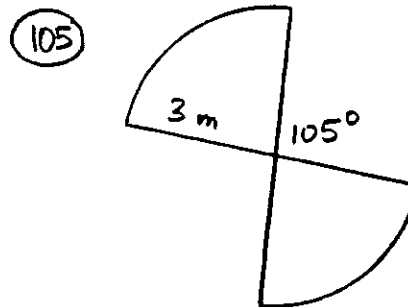
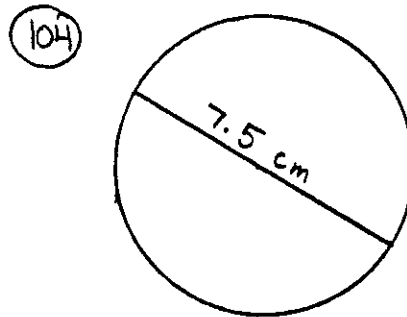
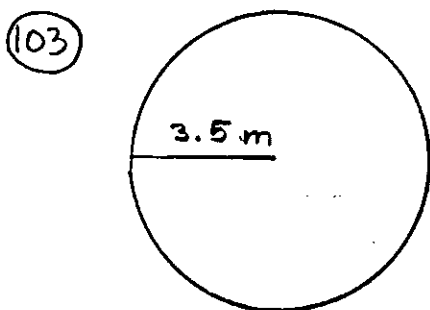
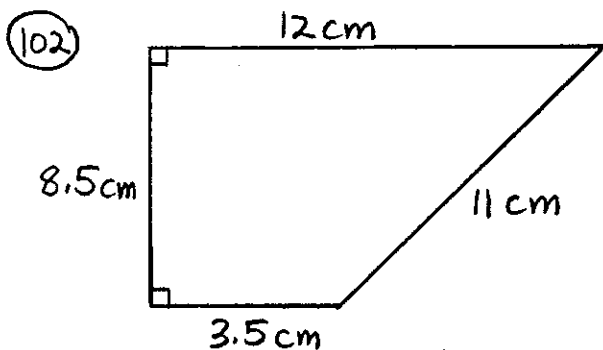
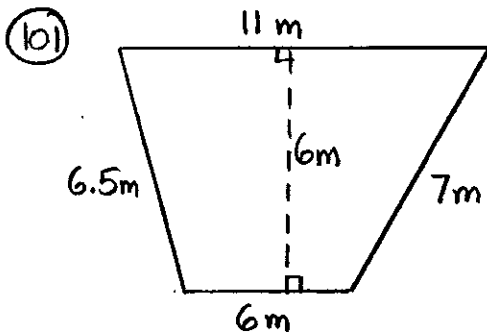
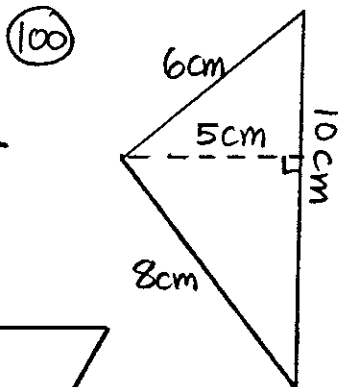
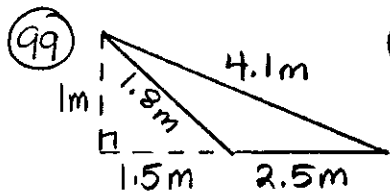
### Geometry review:

- (93) How many degrees in each angle of a regular octagon?  
(94) what is the intersection of a line and a plane?  
(95) Define: Line of symmetry  
(96) Define: Chord

97 (T/F) A square is a rhombus and a rectangle.

98 (T/F) An isosceles triangle cannot have a right angle.

Area, Perimeter / Circumference:



## PRACTICE TEST

① In the number 45,623.0198 what is the value of "9"?

② Round 589.9543 to the nearest  $\frac{1}{10}$  and  $\frac{1}{10}^2$

③  $3^4 =$

④ Expand: 2,030.005

⑤ Rename:

a)  $2\frac{4}{7} =$  improper fraction

b)  $1\frac{4}{10} =$  mix. numeral reduced

⑥ List composites 18-23

⑦ Prime factorization of 96

⑧ Determine

a) GCF of 12, 15

b) LCM of 12, 15

⑨ Rename  $5 \div 6$

a)  $\sqrt{\quad}$

b) fraction

⑩ Compare:

$3\frac{1}{3} \square \frac{13}{4}$

⑪ Complex fraction:

$$\frac{\left(\frac{2}{5}\right)}{\quad}$$

$$\left(\frac{\frac{1}{4}}{\frac{1}{2}}\right)$$

⑫ Equivalence:

a) 12.5% = decimal

b) .2% = fraction

c)  $\frac{5}{11} =$  decimal

d)  $\frac{2}{3} =$  percent

⑬ The original price of a bicycle is \$108. After a 12% discount, what is the new selling price?

⑭ 25% of the new TV programs have too much violence. If 9 new programs have too much violence, how many do not?

⑮ 12 is 7.5% of what?

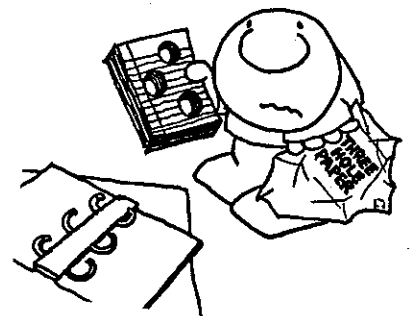
⑯  $\frac{2}{3}$  of the work is shared equally by 6 people. How much does each do?

⑰ Divisibility (2, 5, 10, 3, 4, 6, 9):  
68,244

⑱  $4\frac{2}{7} - 1\frac{1}{2}$

⑲  $\frac{14}{15} \times \frac{25}{28}$

⑳ Change  $.02\bar{4}$  to fraction form



21) What metric unit should be used to measure:

- a) diameter of a nickel
- b) weight of a TV set

22)  $3.5 \text{ m} = \underline{\hspace{1cm}} \text{ cm}$

23)  $90^\circ\text{F} = \underline{\hspace{1cm}}^\circ\text{C}$

24) Which is the better buy? (include unit price for each)

- a) 250g for \$.70
- b) 2 kg for \$5.35

25) Integers:

- a)  $(-5) \times (-8)$
- b)  $(-3) - (-12)$

26) Measures of central tendency:

Data: -3 -8 +2 -3 0 -1

- a) mean
- b) median
- c) mode
- d) range

27) In which quadrant is the point  $(-3, 4)$ ?

28) Eq/Ineq, Op/Cl, T/F:

$$-2^2 - (-4)^2 \geq 0$$

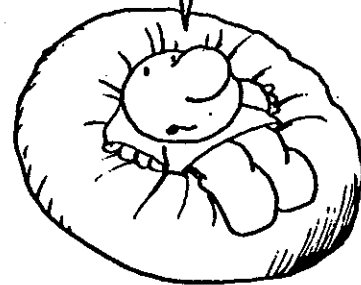
29) Order of operations:

$$-3 - (-4)^2 \times (-3)^0$$

30) Evaluate  $3a^2b - 2c$

for  $a = -1$   $b = -2$   $c = -3$

...AN OVERSTUFFED CHAIR IS ANY CHAIR I HAPPEN TO SIT IN !..



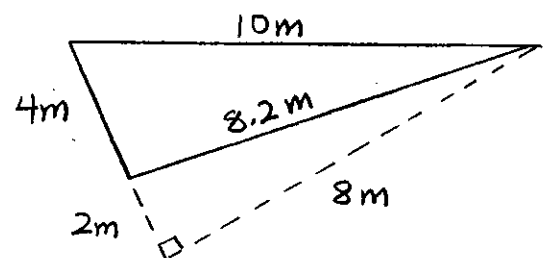
31) Simplify:  $3xy - 2x(y - 2x) + x^2$

32) How many degrees in each angle of a regular pentagon?

33) (T/F) A scalene triangle cannot have an obtuse angle in it.

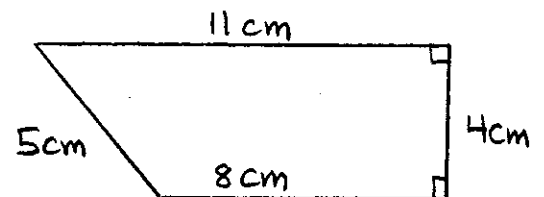
34) (T/F) A rhombus is a parallelogram and a quadrilateral.

35)



- a) area
- b) perimeter

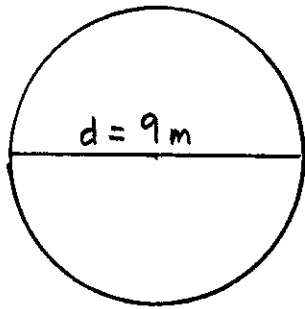
36)



- a) area
- b) perimeter

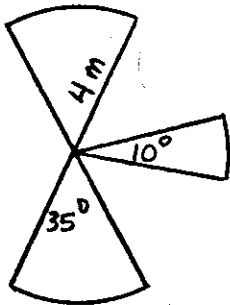
## REMEDATION

37



a) area b) circumference

38



a) area  
b) circumference

Vocabulary terms:

- 39) Bottom number in a subtraction problem
- 40) Four sided polygon
- 41) Line segment from one point on a circle to another.
- 42) Answer to a division problem
- 43) Middle number in a set of data
- 44) The point (0,0)
- 45) Quadrilateral with one pair of opposite sides parallel

1) In 53,682.0471 indicate the value of: a) 4 b) 1

2) Round 589,939.9587 to:  
a)  $\frac{1}{10}$  c)  $\frac{1}{10^2}$  e)  $\frac{1}{10^3}$   
b)  $10^2$  d)  $10^3$  f) 1

3) Exponents:  
a)  $6^3$  c)  $10^4$   
b)  $2^5$  d)  $7^0$

4) Expand:  
a) 30,500.06  
b) 400,002.007

5) Rename:  
a)  $3\frac{2}{3}$  c)  $\frac{16}{10}$   
b)  $5\frac{1}{4}$  d)  $\frac{20}{6}$

6) Primes / Composites:  
a) Primes 14-21  
b) Composites 40-45

7) Prime factorization  
a) 80 b) 360

8) Determine:  
a) LCM 6, 18  
b) LCM 12, 20  
c) GCF 6, 18  
d) GCF 12, 20



⑨ Rename:  
a)  $4 \div 3 = \square$ , fraction

b)  $4/7 = \square$ ,  $\square \div \square$

⑩ Compare:

a)  $\frac{12}{5} \square 2\frac{1}{3}$     b)  $3\frac{1}{4} \square \frac{16}{5}$

⑪ Complex fraction:

a)  $\frac{\left(\frac{1}{5}\right)}{\left(\frac{1}{3}\right)}$     b)  $\frac{\left(\frac{3}{4}\right)}{(3)}$   
 $\frac{\left(\frac{1}{3}\right)}{2\frac{1}{2}}$

⑫ Equivalence:

a)  $.75\% = \text{decimal}$

b)  $.75\% = \text{fraction}$

c)  $5/8 = \text{decimal}$

d)  $5/8 = \text{percent}$

e)  $1.25 = \text{mix. numeral}$

f)  $1.25 = \text{percent}$



⑬ Regular price \$44. Discount is 8%. Determine selling price.  
Discount is \$8. Discount is 5%. Determine the purchase price.

⑭ Out of 22 students in the class, 4 are absent and 4 do not have their homework completed. What percent has homework to turn in?

There are 20 pencils. 20% are blue, 25% are red, and 55% are black. How many pencils are either blue or black?

⑮ 8 is 12.5% of what?  
12 is what percent of 8?

⑯  $\frac{1}{2}$  of the team's practice time was spent doing drills.  $\frac{1}{4}$  of the drills involve running. What fraction of practice involves running?

The last  $\frac{3}{4}$  of the birthday cake is shared equally by 8 people. What fraction did each receive?

⑰ Divisibility (2, 5, 10, 3, 4, 6, 9):  
a) 245, 760    b) 111, 123

⑱ Fraction subtraction:

a)  $6\frac{1}{3} - 1\frac{3}{4}$     b)  $8 - 2\frac{2}{5}$

⑲ Multiplying fractions:

a)  $\frac{7}{10} \times \frac{25}{42}$     b)  $\frac{11}{12} \times \frac{8}{33}$

⑳ Change repeating decimals to fraction form:

a)  $.03\bar{6}$     b)  $.\bar{24}$

㉑ What metric unit should be used to measure:

- a) weight of a person
- b) height of a person
- c) capacity of a punch bowl
- d) capacity of a spoonful of cough syrup

㉒ Metric conversions:

- a)  $2.5 \text{ kg} = \underline{\hspace{1cm}} \text{ g}$
- b)  $.035 \text{ cm} = \underline{\hspace{1cm}} \text{ mm}$
- c)  $.15 \text{ t} = \underline{\hspace{1cm}} \text{ kg}$
- d)  $.006 \text{ km} = \underline{\hspace{1cm}} \text{ cm}$

㉓ Temperature conversions:

a)  $6^\circ\text{C} = \underline{\hspace{1cm}}^\circ\text{F}$     b)  $25^\circ\text{F} = \underline{\hspace{1cm}}^\circ\text{C}$

㉔ Comparative purchasing: (include per unit cost)

- a) 5 L for \$6.80
- b) 500 mL for \$.80

a) 1200 g for \$3.45

b) 2.5 kg for \$6.80

㉕ Integers:

a)  $(-6) - (-12)$     c)  $(4) - (7)$

b)  $(-8) \times (9)$     d)  $(-3) \times (-8)$

㉖ Measures of central tendency: (mean, median, mode, range)

a) Data: -6 -1 -7 0 4 -10

b) Data: 2.5 3.1 2.5 4.7

㉗ Identify the quadrant:

a) (4, 7)    b) (-2, -6)

㉘ Eq/Ineq, Op/Cl, T/F:

a)  $-3a = 2a - 4$

b)  $2 - (-4) > 1$

㉙ Order of operations:

a)  $-3^2 - (-2)^3 \div (-2)^2$

b)  $\frac{-4^2 - 5^0}{-2^2 + 4} - 3^2$

㉚ Evaluating expressions:

$x = -1$      $y = -2$      $z = 2$

a)  $3xy - 2xz$

b)  $x^2y - 2y^2$

31) Simplifying expressions:

a)  $2(a-3) - 3(2a+1)$

b)  $x(2x-y) - xy + x^2$

32) How many degrees in:

a) a quadrilateral?

b) each angle of a regular hexagon?

33) - 34) Geometry (T/F):

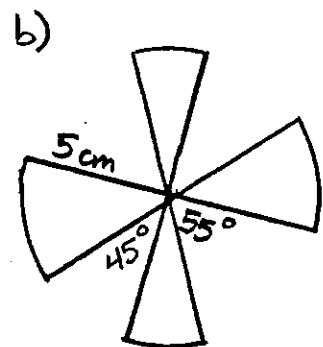
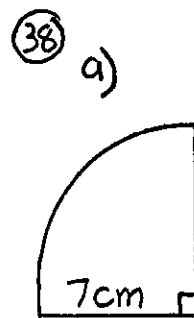
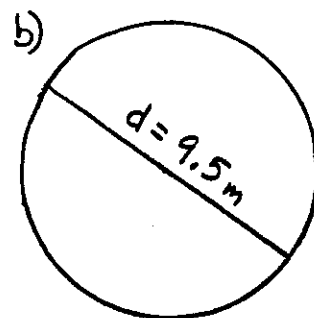
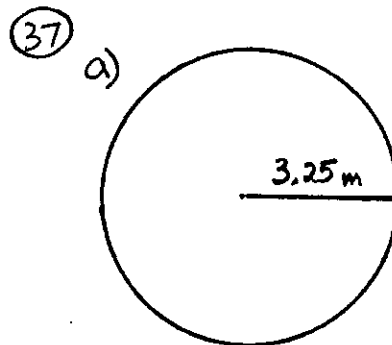
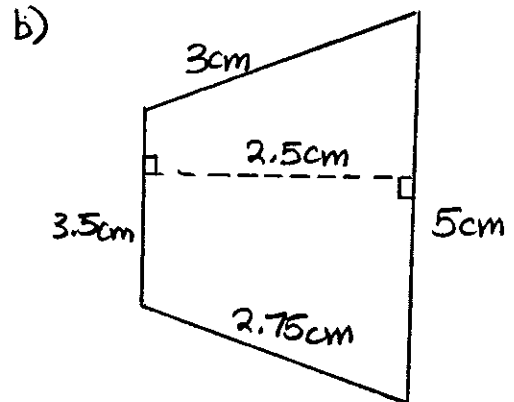
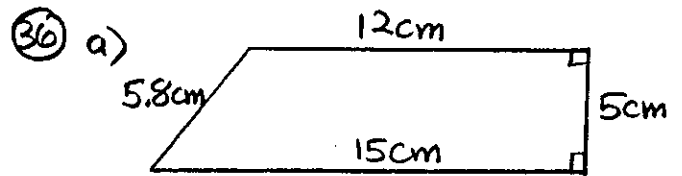
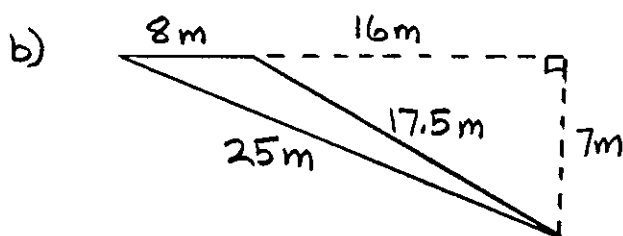
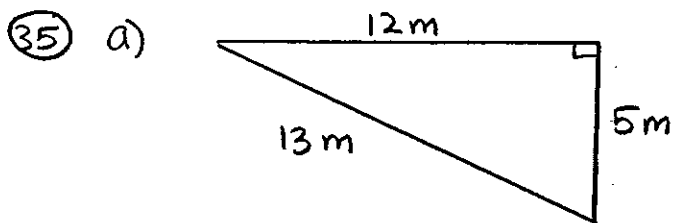
a) An isosceles triangle is exclusive of an acute triangle.

b) A square is a parallelogram, a polygon, and a rhombus.

c) A ray has more points than a line segment.

d) The diameter of a circle is twice the radius of the circle.

Area, Perimeter/Circumference:



39 - 45 Vocabulary terms:

- a) Answer to a multiplication problem
- b) Non-terminating, non-repeating decimal
- c) Polygon with all sides and angles congruent
- d) Distance around a circle or sector
- e) Rectangle with all sides congruent
- f) Metric measure for capacity
- g) Across from side to side
- h) Number with factors of only one and itself
- i) Six sided polygon
- j)  $180^\circ$  degree angle
- k) Simple closed curve with all points an equal distance from the center point
- l) Top value in a fraction
- m) Equal angles on opposite sides of intersecting lines

- n) Fraction with a fraction in it
- o) Most frequently occurring value in the data
- p) Angle measuring less than  $90^\circ$  and greater than  $0^\circ$
- q) The side opposite the right angle in a right triangle
- r) Any value that includes division by zero
- s) A value used as a multiplier for a variable
- t) Comparison of two ratios



# MATH VOCABULARY (First Two Quarters)

Acute Angle	Angle measuring greater than 0 and less than 90 degrees
Acute Triangle	A triangle with three acute angles
Addend	A number added to another number
Angle	Rotation (measured in degrees) between two rays with a common endpoint
Arc	Section of the circumference of a circle
Area	The number of square units needed to cover a surface
Capacity	The amount that can be held within a container
Celsius	Temperature scale based on water freezing at 0 and boiling at 100 degrees
Central Angle	Angle formed by two radii of a circle
Central Tendency	Statistical measures (mean, median, mode, range)
Chord	Line segment from one point on a circle to another point on the circle
Circle	Simple closed curve with all points an equal distance from the center point
Circumference	The distance around a circle or partial circle
Closed Curve	Curve with a common starting and ending point - no loose ends (can intersect)
Closed Sentence	Equation or inequality with all terms being constants - no variables
Coefficient	A value used as a multiplier for a variable
Complex Fraction	A fraction containing another fraction in its numerator or denominator
Composite Number	A number with factors other than one and itself
Congruent	Equal in all respects - size, shape, etc.
Coordinate Axis	Perpendicular number lines dividing a plane into four quadrants
Curve	Set of connected points in a plane
Data	Set of values
Degree	Unit of measure for angles
Denominator	Bottom value in a fraction (represents the whole in a ratio)
Diameter	Distance between two points on a circle passing through the center point
Difference	Solution to a subtraction problem
Discount	Money subtracted from the original price of an item on sale
Distributive Property	Distributive Property of Multiplication over Addition: $a(b+c)=ab+ac$
Dividend	Number divided by another number (inside bracket, left of sign, numerator)
Divisor	Number that divides into another (outside bracket, right of sign, denominator)
Equation	A number sentence showing two equal expressions
Equiangular Triangle	Triangle with three congruent angles (also equilateral)
Equilateral Triangle	Triangle with three congruent sides (also equiangular)
Equivalent	Having equal measures
Evaluating Expressions	Substituting specified numbers to determine the value of an expression
Even Number	Any number divisible evenly by 2 (has a units digit of 0, 2, 4, 6, or 8)
Exclusive	Not containing or overlapping anything else
Exponent (Power)	Value indicating how many times the base number is used as a factor
Expression	An algebraic value including a term or addition/subtraction of terms
Factor	Number that can be divided evenly into another number
Fahrenheit	Temperature scale based on water freezing at 32 and boiling at 212 degrees
Gram	Metric unit of measure for weight
Greatest Common Factor	The largest number that divides evenly into two or more given numbers
Heptagon	A seven sided polygon
Hexagon	A six sided polygon
Horizontal	Across (from side to side)
Hypotenuse	Longest side of a right triangle located opposite from the right angle
Improper Fraction	Fraction with numerator larger than denominator
Inclusive	Including or overlapping
Inequality	Number sentence showing two expressions separated by an inequality sign
Infinite Decimal	A non-repeating, non-terminating decimal (example: pi, sq root of 2)
Infinity	Concept of boundlessness in time, space, quantity
Integers	Positive and negative counting numbers and zero
Intersection	Point or points in common between geometric figures
Isosceles Triangle	Triangle with two congruent sides
Least Common Multiple	The smallest number that the original numbers can divide into evenly
Legs	Sides of a right triangle adjacent (next to) the right angle
Line	Straight set of connecting points extending to infinity in two directions
Line of Symmetry	A line dividing a region into two congruent parts

Line Segment	Section of a line with definite starting and ending points
Liter	Metric unit of measure for capacity
Mean	Average of the data (sum divided by number of items in data)
Median	Middle value in data (avg of two middle values if even number of items)
Meter	Metric unit of measure for length
Minuend	Number from which another is subtracted (top number in subtraction problem)
Mixed Numeral	Value expressed by a whole number and a fraction
Mode	Item occurring most frequently in data
Multiple	Number divisible evenly by the original number
Numerator	Top value in a fraction (represents part of a whole in a ratio)
Obtuse Angle	An angle measuring greater than 90 and less than 180 degrees
Obtuse Triangle	Triangle with one obtuse angle
Octagon	Eight sided polygon
Odd Number	Every other number starting with 1 (has units digit of 1, 3, 5, 7, or 9)
Open Sentence	Equation or inequality containing at least one variable
Order of Operations	Rules that govern order in which calculations are to be done
Ordered Pair	Two values specifying the horizontal and vertical coordinates (x,y)
Origin	The point of intersection (0,0) between the two coordinate axis
Original Price	The beginning price of an item before a discount is subtracted
Parallel Lines	Lines in the same plane that never intersect
Parallelogram	Quadrilateral with two sets of parallel sides
Pentagon	Five sided polygon
Percent	Ratio with 100 as the bottom term (part out of 100)
Perimeter	Distance around a polygon or simple closed curve
Perpendicular Lines	Lines intersecting to form right angles
Pi	Ratio of the circumference of a circle to its diameter (approx. 3.14)
Plane	Flat surface extending to infinity in two dimensions
Point	Location without dimensions
Polygon	A simple closed curve made entirely of line segments
Prime Factorization	Product of prime numbers (in ascending order) producing the original value
Prime Number	A whole number greater than 1 with factors of only 1 and itself
Product	Solution to a multiplication problem
Proportion	Comparison of two ratios
Protractor	Instrument used for measuring angles
Purchase Price	Price of an item after the discount has been subtracted
Quadrant	One of the four regions formed by the coordinate axis
Quadrilateral	Four sided polygon
Quotient	Solution to a division problem
Radius	The distance from the center point to any point on a circle (half the diameter)
Range	The difference between the highest and lowest values in data
Rate of Discount	Percent of the original price deducted to determine the selling price
Ratio	Indicates part of a whole - fractional value
Ray	Section of a line with a definite starting point
Reciprocal	Value which multiplied by the original gives a product of 1 (mult. inverse)
Rectangle	Parallelogram with four right angle
Regular Polygon	Polygon with all sides and angles congruent
Regular Price	Price of an item before discount is deducted (original price)
Repeating Decimal	Decimal that does not terminate and repeats a pattern of digits to infinity
Rhombus	Parallelogram with all sides congruent
Right Angle	Angle measuring 90 degrees formed by perpendicular lines or segments
Right Triangle	Triangle that includes one right angle
Scalene Triangle	Triangle with no congruent sides
Sector	Section of a circle bounded by two radii and an arc
Selling Price	Price of an item after discount is subtracted (purchase price)
Semi-Circle	Exactly half of a circle
Simple Closed Curve	Closed curve that does not intersect itself
Simplifying Expressions	Combining like terms in an algebraic expression
Square	Rectangle with all sides congruent
Straight Angle	Angle measuring 180 degrees
Subtrahend	A number subtracted from another number (bottom number in subtraction)
Sum	Solution to an addition problem
Term	Single value or product of coefficients and variables
Terminating Decimal	Decimal value with a definite number of digits

Trapezoid  
Triangle  
Undefined Value  
Variable  
Vertex  
Vertical  
Vertical Angles

Quadrilateral with exactly one set of parallel sides  
Three sided polygon  
Any value that includes a division by zero  
Letters or symbols representing values in an expression  
Point where an angle is formed (plural is vertices)  
Up and down, from top to bottom  
Equal angles formed on opposite sides of intersecting lines

