

## MBF 3C Unit 0 - Mathematics Review Unit

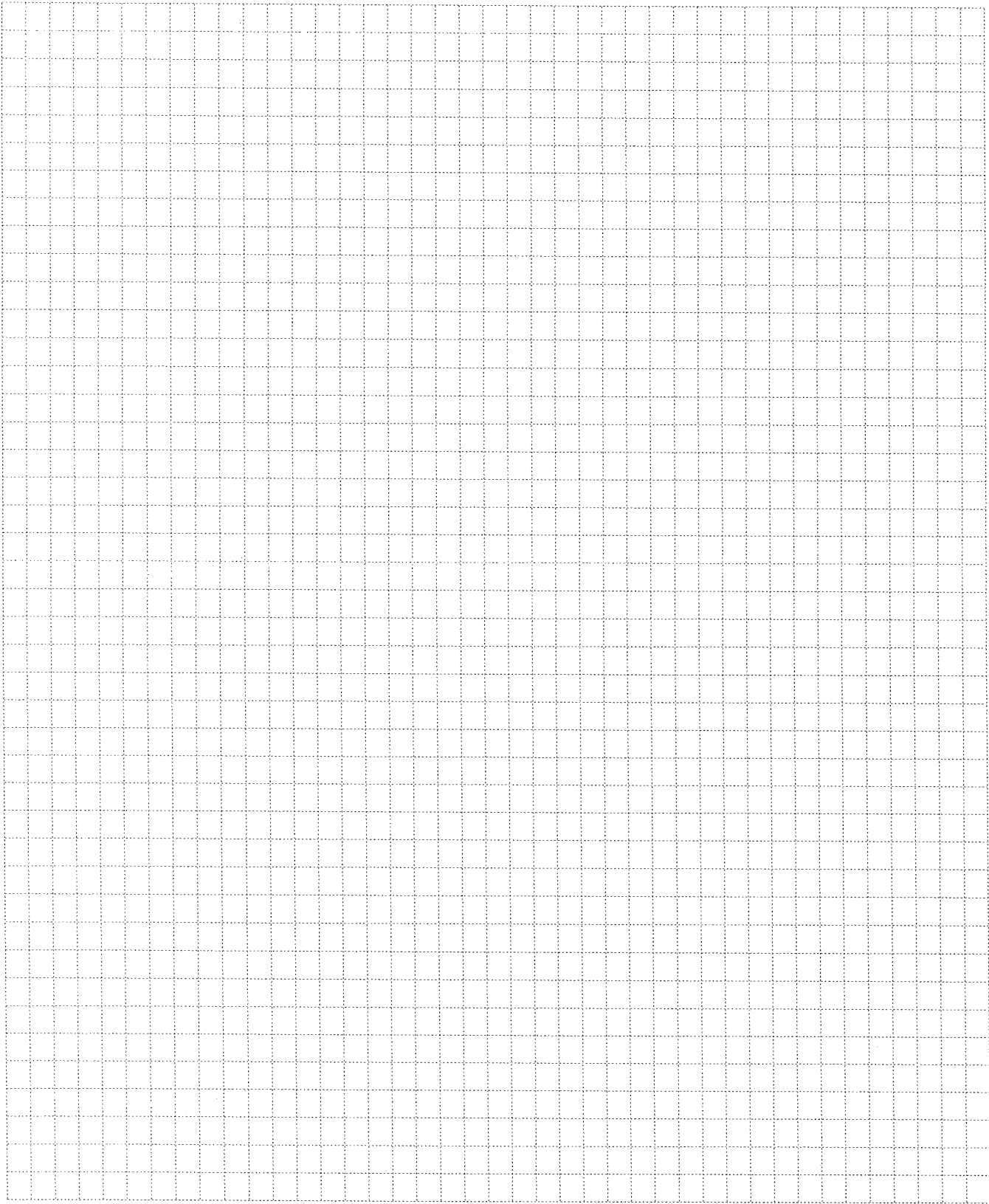
Day	Date	Lesson Title	Handouts	Homework Assigned
1		General Review of Grades 7 - 10	U00A01 U00A02	U00A03
2		Review of Ratios	U00A04	Supplemental Worksheet (not provided)
3		Review of Solving Equations	U00A05 U00A06	Supplemental Worksheet (not provided)
4		Review of Similar Triangles	U00A07	Supplemental Worksheet (not provided)
5		Flex Period		
<b>TOTAL DAYS:</b>		<b>5</b>		

# Math I Know!

**Prior to Gr 9**

**Gr 9**

**Gr 10**



### Find Someone Who ...

A kite is 10 m up in the sky. The angle the string makes with the ground is 50 degrees. How long is the kite string?

Name \_\_\_\_\_

Can Evaluate:

$-6 + -3 =$  \_\_\_\_\_

$2 - (-3) =$  \_\_\_\_\_

Name: \_\_\_\_\_

Can Evaluate:

$6 \times 3 =$  \_\_\_\_\_

$9 \times 9 =$  \_\_\_\_\_

Name: \_\_\_\_\_

Can expand  $3(x + 2)$

Name \_\_\_\_\_

Can solve for p:

$P - 4 = 13$

Name: \_\_\_\_\_

Can round to the nearest hundred

a)  $459 =$  \_\_\_\_\_

b)  $32926 =$  \_\_\_\_\_

Name \_\_\_\_\_

Can use the Pythagorean theorem to solve for b given  $c = 13$  and  $a = 12$

Name: \_\_\_\_\_

Can represent slope in two ways

Name \_\_\_\_\_

Can solve: If you build a skateboard ramp whose ratio of height to base must be 2:3, what is the base if the height is 4.5 m?

Name \_\_\_\_\_

Can round to the nearest tenths

a)  $7.22 =$  \_\_\_\_\_

b)  $3.024 =$  \_\_\_\_\_

c)  $2.56 =$  \_\_\_\_\_

Name \_\_\_\_\_

Can expand and simplify  $(x + 1)(x - 1)$

Name \_\_\_\_\_

Can expand and simplify  $(x + 1)^2$

Name \_\_\_\_\_

Can use the Pythagorean theorem to solve for c given  $a=3$  and  $b=4$

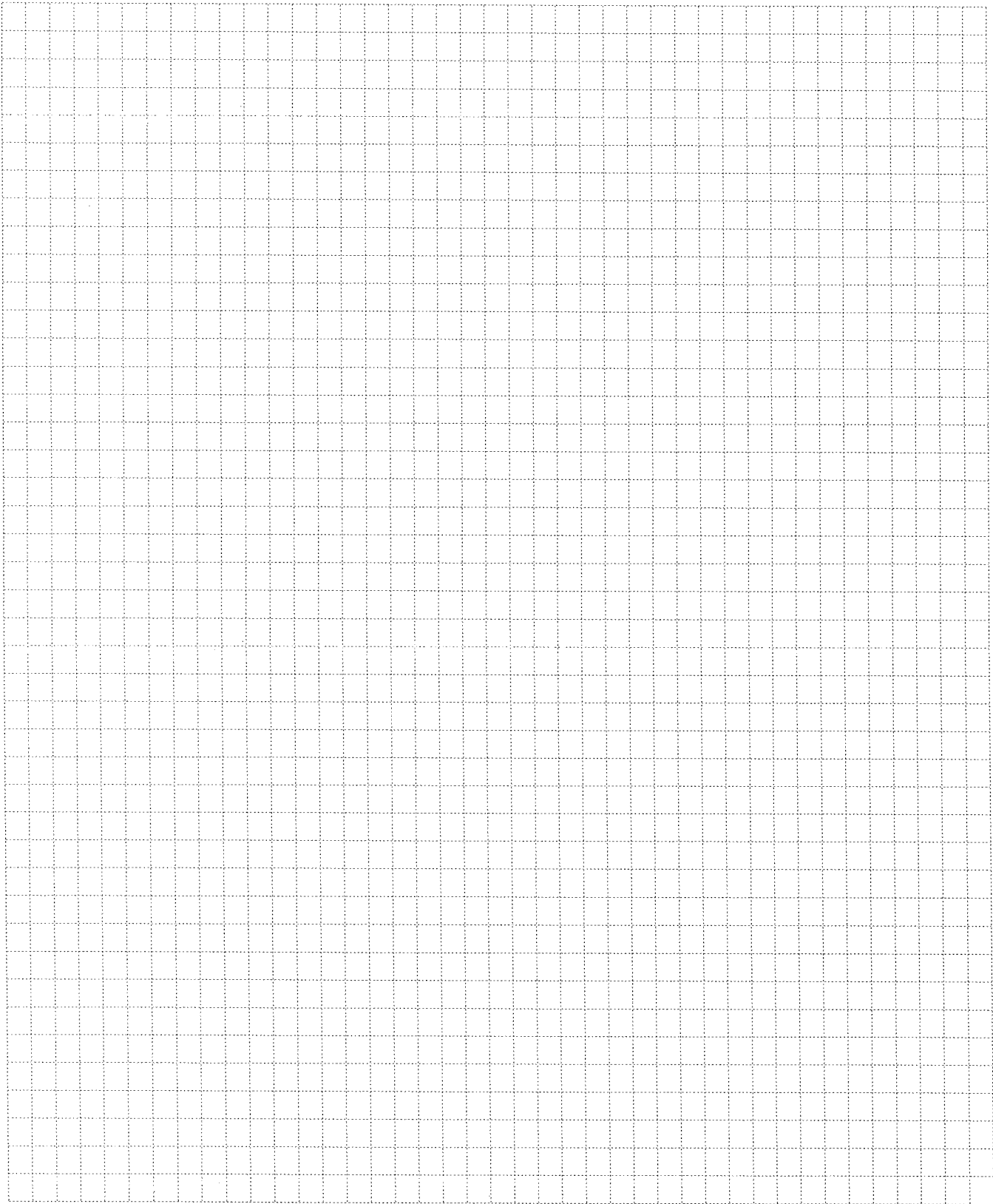
Name \_\_\_\_\_

Can Divide:

$100 \text{ by } 10 =$  \_\_\_\_\_

$144 \text{ by } 12 =$  \_\_\_\_\_

Name: \_\_\_\_\_



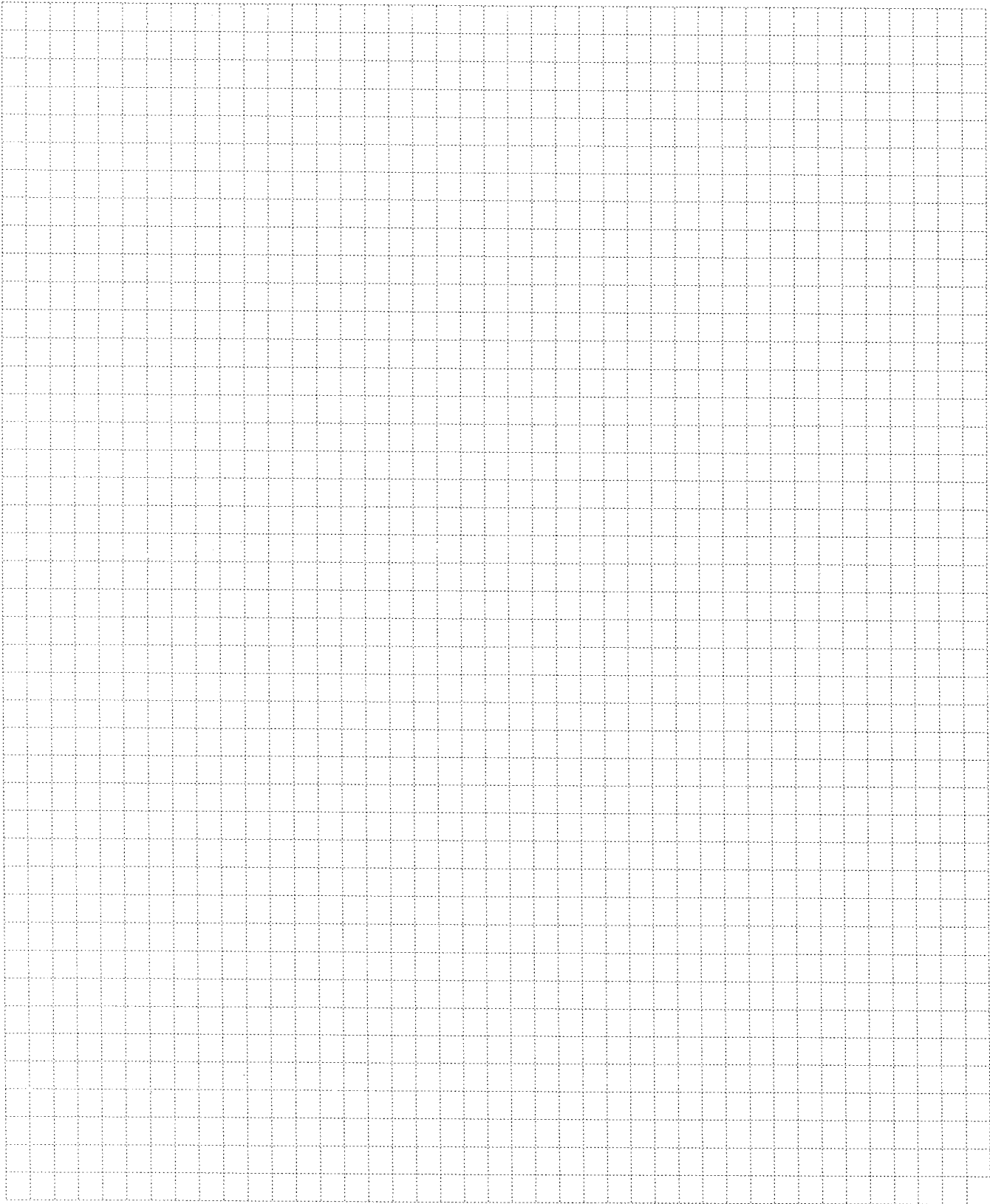
## Math MATCHING

Match the letter from Column B with the most appropriate number in Column A.  
Be certain to show ALL work

### Column A

### Column B

- |       |   |                   |
|-------|---|-------------------|
| _____ | 1. Expand and simplify<br>$2(x + 3)$  | A. 24.4 m         |
| _____ | 2. Use the Pythagorean Theorem to solve for c given a = 8 and b = 6   | B. 15.56 m        |
| _____ | 3. Expand and simplify<br>$(x + 3)(x + 2)$  | C. $2x + 6$       |
| _____ | 4. Use the Pythagorean Theorem to solve for c given a = 20m and b = 14m   | D. 7.5 m          |
| _____ | 5. If you build a skateboard ramp whose ratio of height to base must be 2:3, what is the base if the height is 5 m?                               | E. 17.68 m        |
| _____ | 6. A kite is 15 m up in the sky. The angle the string makes with the ground is 50 degrees. How long is the kite string?                           | F. $x^2 + 5x + 6$ |
| _____ | 7. A kite is 10 m up in the sky. The angle the string makes with the ground is 40 degrees. How long is the kite string?                           | G. 19.58 m        |
| _____ | 8. Bob has a kite and his string is 25 m long. The angle the kite makes with the ground is 45 degrees. How far horizontally is the kite from Bob? | H. 10             |

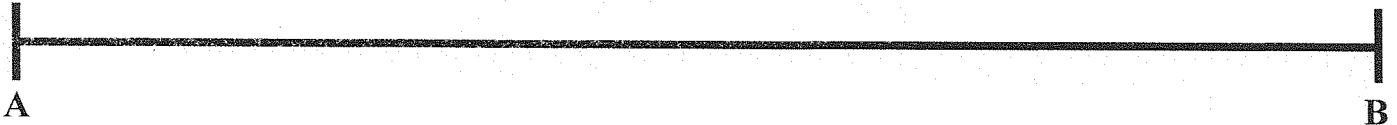


### The Golden Ratio

#### Station # 1: Investigating The Golden Ratio

On the line segment AB, draw a point C such that the ratio of the short part of the segment AC to the long part CB equals the ratio of the long part CB to the entire segment AB.

Ie:  $\frac{AC}{BC} = \frac{BC}{AB}$  Calculate the value of the ratio as a decimal? \_\_\_\_\_



Record your various trials in the table below.

AB	AC	BC	$\frac{AC}{BC}$	$\frac{BC}{AB}$





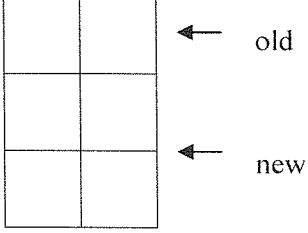
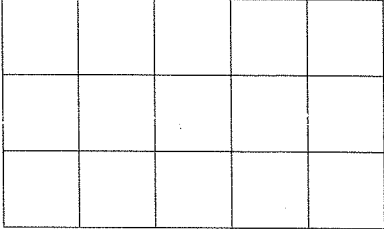
Station # 2: Creating a Golden Rectangle

Step 1 – Create a square that is 1 inch by 1 inch.

Step 2 – Add a square of the same size to form a new rectangle.

Step 3 – Continue adding squares whose side lengths are the length of the longer side to form a new rectangle.

Complete the table below recording the lengths of the rectangle and calculate the value of the ratio of the longest side of the rectangle to the shortest side of the rectangle as a decimal.

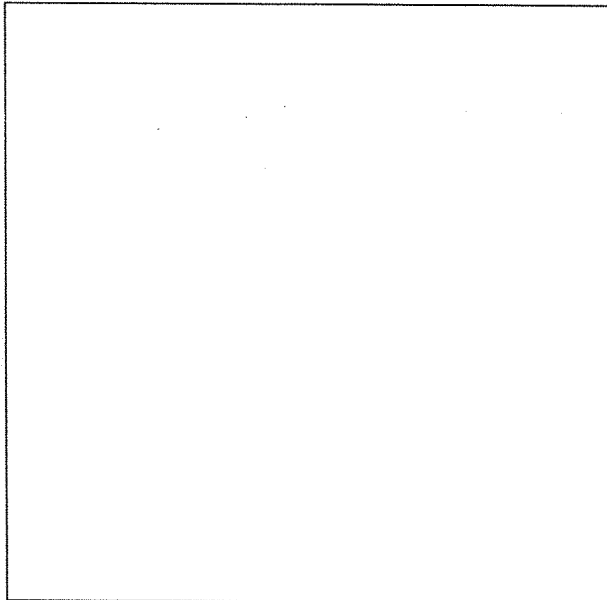
Diagram	Length of the Longest Side of the Rectangle (L)	Length of the Shortest Side of the Rectangle (S)	L : S (as a decimal)
			
			
			
			

Station # 3: Ratio War

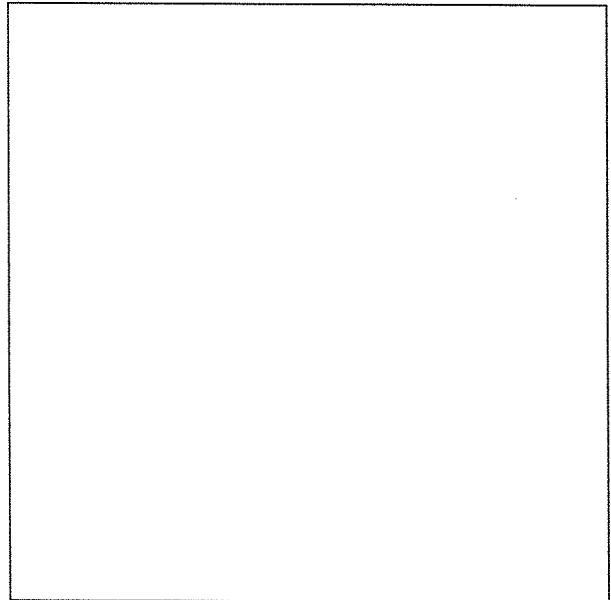
**Instructions:**

- Deal from a deck of cards (only Ace to 10 for each suit) to each of the players.
- Each player turns over a card for the first term of the ratio and a card for the second term of the ratio and places them on the mat provided.
- The player with the larger ratio wins the turn.

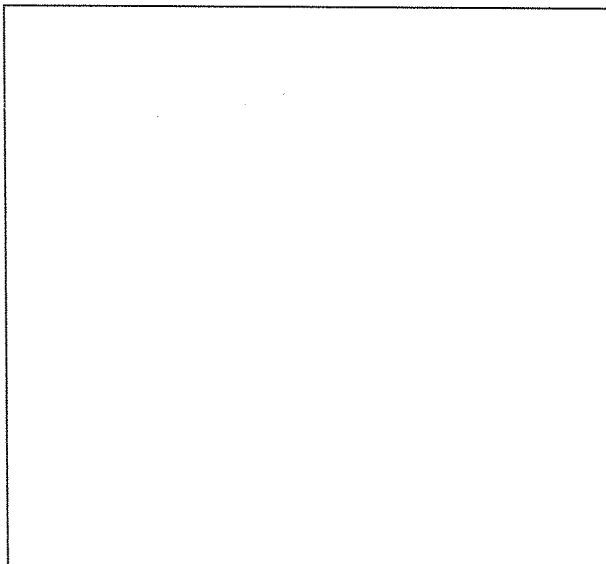
**Player 1 – 1<sup>ST</sup> term of ratio**



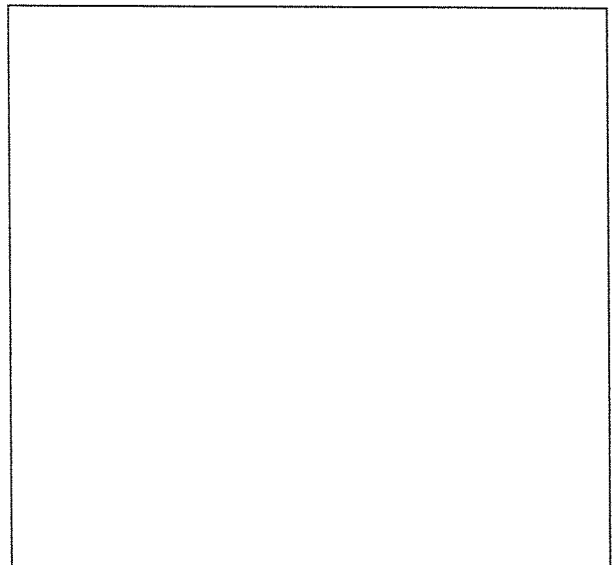
**Player 2 – 1<sup>ST</sup> term of ratio**



**Player 1 – 2<sup>nd</sup> term of ratio**



**Player 2 – 2<sup>nd</sup> term of ratio**



## Human beauty is based on the Divine Proportion

### Station # 4: Circumference of Wrist vs. Circumference of Thumb

- a) Measure the circumference of your wrist in inches.
- b) Measure the circumference of your thumb in centimeters.
- c) What do you notice about the measurements?
- d) What is this ratio?

### Station # 5: Width of Nostrils vs. Width of Nose

- a) Measure the width (from the outside of one nostril to the outside of the other) in centimeters.
- b) Measure the width of your nose (at the widest part) in centimeters.
- c) What do you notice about the measurements?
- d) What is this ratio?

### Station # 6: Width of Nostrils vs. Distance from Upper Lip to Bottom of Nose

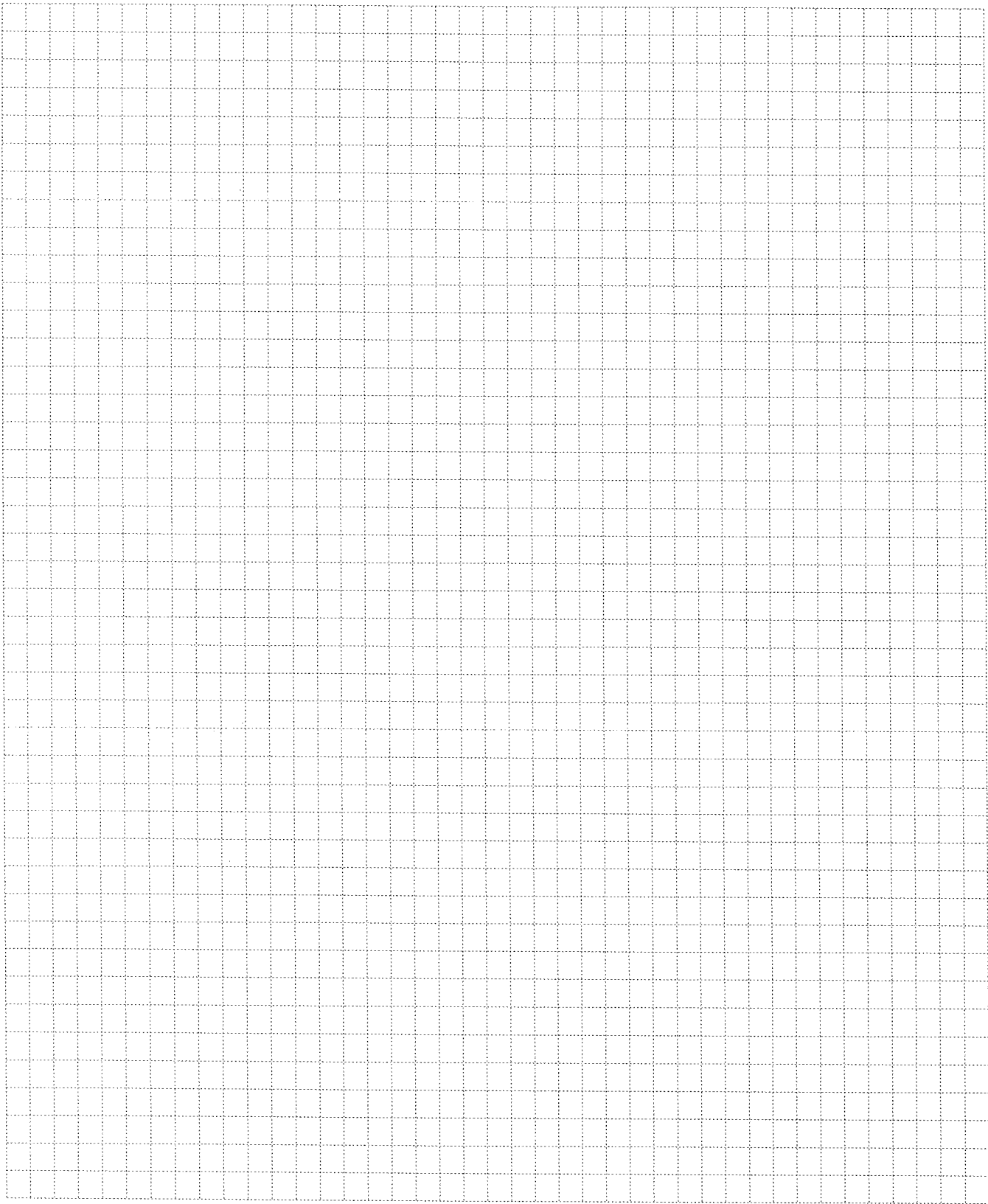
- a) Using the measurement of part (a) from Station # 5
- b) Measure the distance from the top of your upper lip to the bottom of your nose in centimeters.
- c) What do you notice about the measurements?
- d) What is this ratio?

### Station # 7: Height of Body vs. Height from your head to the tip of your fingers

- a) Measure how tall you are in centimeters.
- b) Measure the distance from the top of your head to the tip of your fingers when your arms are at your sides (soldier style) in centimeters.
- c) What do you notice about the measurements?
- d) What is this ratio?

### Other Interesting Ratios

- Top of your head to your navel vs. Measurement from part (b) in Station # 7
- Top of your head to your navel vs. Width of your shoulders
- Top of your head to your navel vs. Length of your forearm (from the inside of your elbow to your finger tips)
- Length of your forearm vs. Distance from the top of your head to the base of your chin.

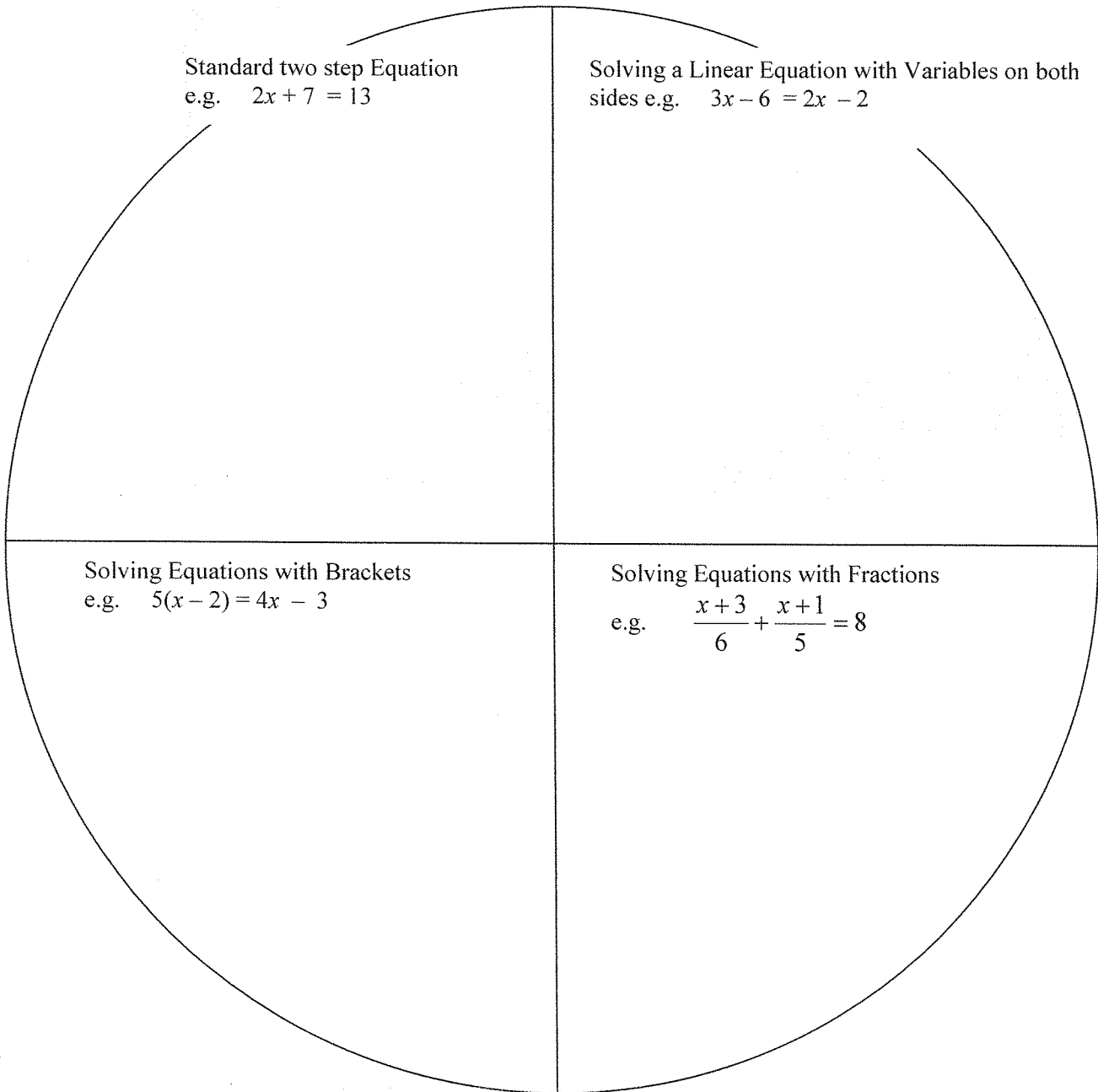


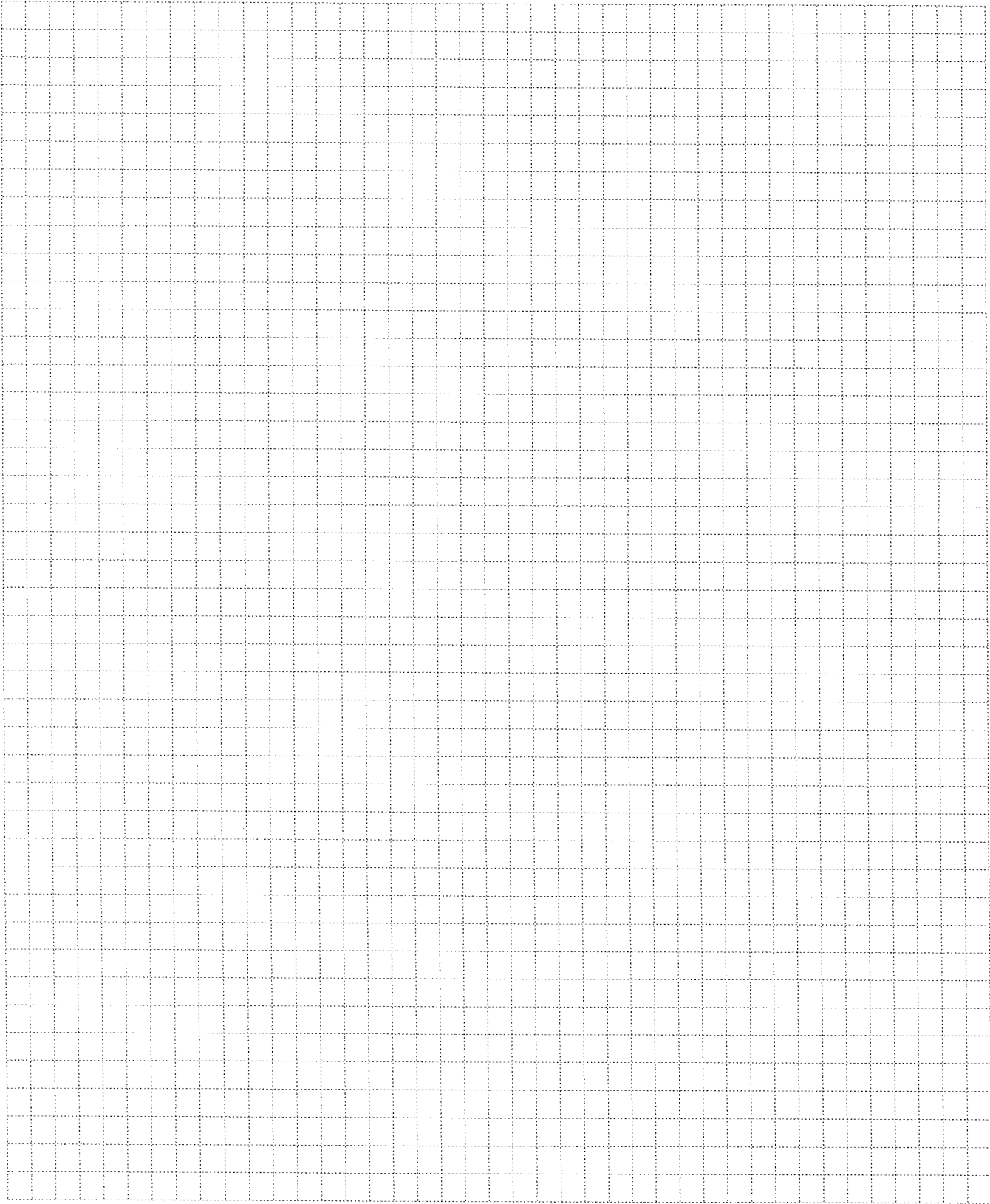
## K.W.L. - Chart for Equations

What I Know - What I Want to Know - What I have Learned

Concept, Term, or Diagram	<b>K</b> What do I KNOW?	<b>W</b> What do I WANT to Know?	<b>L</b> What have I LEARNED?
Equations			

Solve the equations. Indicate on the Concept Circle the methods/steps you used to solve the equations.





Solving and Checking Equations

Solve and Check the following Equations.

1)  $15 = 23 - 4x$

2)  $3(x - 4) = 12$

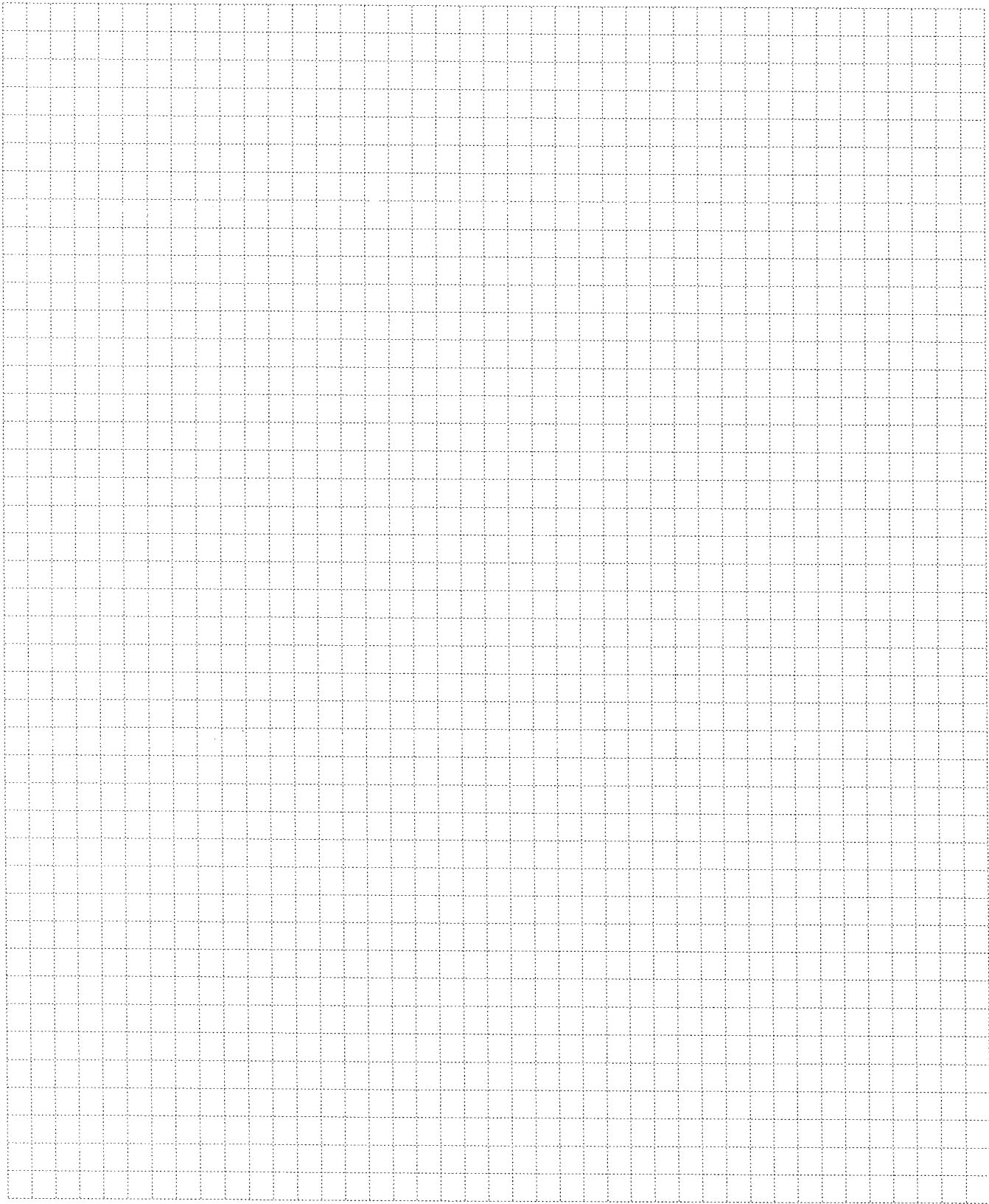
3)  $2 - 5x = -1 - 4x$

4)  $3(1 - x) = -2(1 - x)$

5)  $\frac{x}{6} - 5 = \frac{1}{2}x + \frac{1}{3}x - 4$

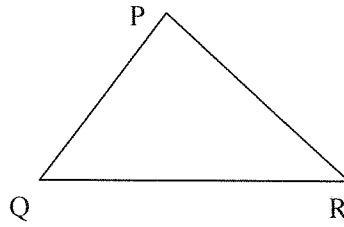
Answers 1.)  $x = 2$  2.)  $x = 8$  3.)  $x = 3$  4.)  $x = 1$  5.)  $x = 6$



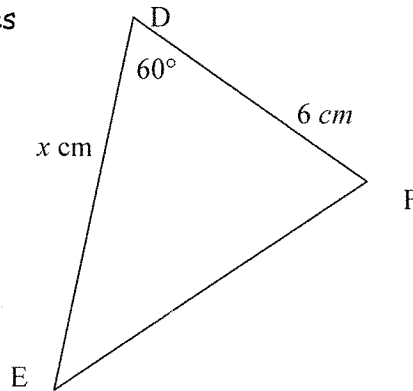
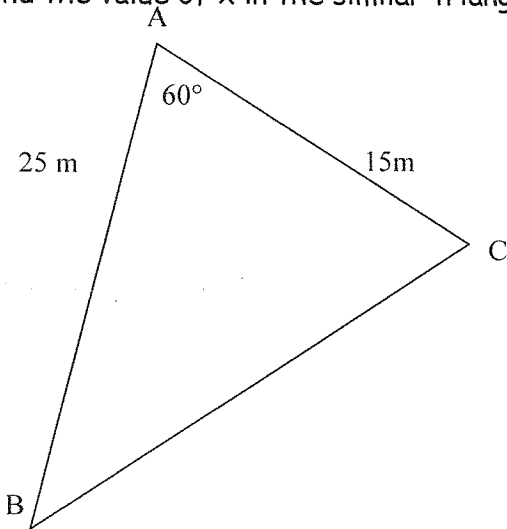


Solving for Similar Triangles

1. Name the triangle, the sides and the angles.

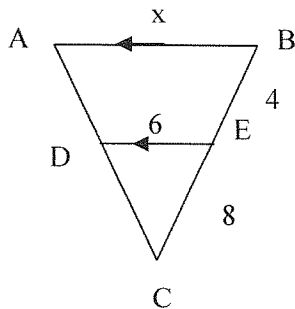


2. Find the value of  $x$  in the similar triangles

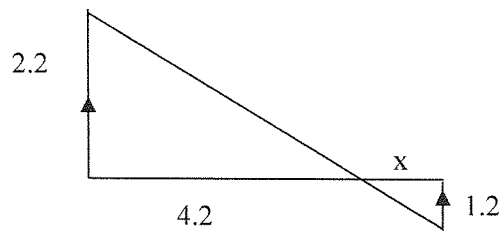


3. Determine if the triangles are similar, and if they are state how you know this, and find the value of  $x$ .

a)



b)



**Answers:**

1. One such naming is Triangle PQR (remember it doesn't matter which way you name it as long as you are consistent), sides  $p$ ,  $q$ , and  $r$  and angles  $P$ ,  $Q$ , and  $R$

2.  $x = 10$

3a)  $x = 9$

3b)  $x = 2.29$