

## 2.5 Formulas &amp; Problem Solving CYU DAY ONE

Use when you get it right all by yourself

**S** Use when you did it all by yourself, but made a silly mistake

**H** Use when you could do it alone with a little help from teacher or peer

**G** Use when you completed the problem in a group

**X** Use when a question was attempted but wrong (get help)

**N** Use when a question was not even attempted

CONCEPTS	BASIC	INTERMEDIATE	ADVANCED
Evaluating Formulas for certain variables	1 - 9	1 - 9	1 - 9
Determining which formula to use	10 - 14	10 - 14	10 - 14

1 - 8: Substitute the given values into each given formula and solve for the unknown variable. If necessary, round to one decimal place.

1.  $A = bh$ ;  $A = 45$  and  $b = 15$  (area of a parallelogram)

$$h = 3$$

2.  $d = rt$ ;  $d = 195$  and  $t = 3$  (distance formula)

$$r = 65$$

3.  $S = 4lw + 2wh$ ;  $S = 102$ ,  $l = 7$ ,  $w = 3$  (surface area of a special rectangular box)

$$h = 3$$

4.  $V = lwh$ ;  $l = 14$ ,  $w = 8$ ,  $h = 3$  (volume of a rectangular box)

$$V = 336$$

5.  $A = \frac{1}{2}h(B + b)$ ;  $A = 60$ ,  $B = 7$ ,  $b = 3$  (area of a trapezoid)

$$h = 12$$

6.  $P = a + b + c$ ;  $P = 30$ ,  $a = 8$ ,  $b = 10$  (perimeter of a triangle)

$$c = 12$$

7.  $V = \frac{1}{3}Ah$ ;  $V = 45$ ,  $h = 5$  (volume of a pyramid)

$$A = 27$$

8.  $C = 2\pi r$ ;  $C = 15.7$  (circumference of a circle)

$$r \approx 2.5$$

9.  $A = \pi r^2$ ;  $r = 4.5$  (area of a circle)

$$A \approx 63.6$$

10 – 14: Solve the following word problems. Draw and label a sketch. Show all work to earn full credit. Use appropriate units with your final answer.

10. The iconic NASDAQ sign in New York's Times Square has a width of 84 feet and an area of 10,080 square feet. Find the height.

$$120 \text{ ft}$$

11. The world's largest sign for Coca-Cola is located in Arica, Chile. The rectangular sign has a length of 400 feet and an area of 52,400 square feet. Find the width of the sign.

$$131 \text{ ft}$$

12. For the purpose of purchasing new baseboard and carpet,  
a. Find the area and perimeter of a room with length of 11.5 ft and a width of 9 ft.

$$A = 103.5 \text{ ft}^2 \quad P = 41 \text{ ft}$$

- b. Identify whether baseboard has to do with area or perimeter and then the same with the carpet.

baseboard: perimeter      carpet: area

13. For the purchase of purchasing lumber for a new fence and seed to plant grass in a triangular yard with base of 36 ft, height of 27 ft, and hypotenuse of 45 ft.

- a. Find the area and perimeter of the yard.

$$A = 486 \text{ ft}^2 \quad P = 108 \text{ ft}$$

- b. Identify whether a fence has to do with area or perimeter and the same with the grass seed.

fence: perimeter      grass seed: area

14. A frame shop charges according to both the amount of framing needed to surround the picture and the amount of glass needed to cover the picture. Trapezoidal frame with legs of 20 inches, base<sub>1</sub> = 24 in, base<sub>2</sub> = 56 in, and height of the frame is 12 in.

- a. Find the area and perimeter of the trapezoid-shaped framed picture below.

$$\text{area: } 480 \text{ in}^2 \quad \text{Perimeter: } 120 \text{ in}$$

- b. Identify whether the amount of framing has to do with perimeter or area and the same with the amount of glass.

frame: perimeter      glass: area

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**CYU Reflection:** How far can you go: basic, intermediate, or advanced?

**Rate your mastery level!**

How confident are you with the skills this CYU covered? Circle the score you would give yourself.

