# Chapter 3 Supplement

Formulas

# 3.5) Formulas

- Perimeter and Area of a Triangle:

$$P = a + b + c \qquad A = \frac{bh}{2}$$

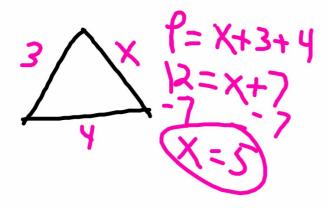- Area of a rectangle:

$$A = l \bullet w$$

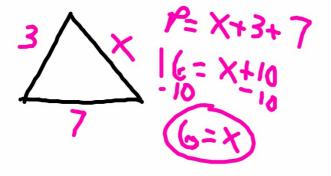- Volume of a box:

$$V = l \bullet w \bullet h$$

# Examples:

- 1. Find the third side of triangle if the perimeter is 12 and the other sides have length of 3 and 4.

$$P = x + 3 + 4$$
$$12 = x + 7$$
$$-7 \qquad -7$$
$$x = 5$$

# Examples

- 2. Find the third side of triangle if the perimeter is 16 and the other sides have length of 3 and 7.

$$P = X + 3 + 7$$

$$16 = X + 10$$

$$-10 \qquad -10$$

$$6 = X$$

Triangle diagram with sides labeled 3, X, and 7.

# Examples

- 3. Find the area of triangle if the height is 10 and base is 5.

$$A = \frac{b \cdot h}{2}$$

$$A = \frac{5 \cdot 10}{2} = \frac{50}{2} = \boxed{25 v^2}$$

# Examples
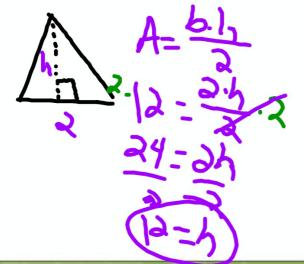
- 4. Find the area of triangle if the height is 7 and base is 9 .
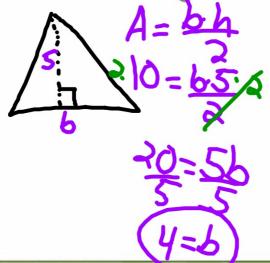
$$A = \frac{b \cdot h}{2}$$

$$A = \frac{9 \cdot 7}{2} = \frac{63}{2} = \boxed{31.5 \, v^2}$$

# Examples
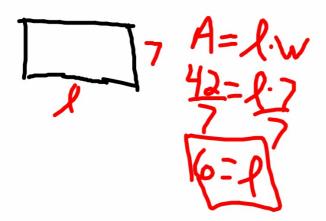
- 5. Find the height of a triangle whose area is 12 and base is 2.

$$A = \frac{b \cdot h}{2}$$

$$2 \cdot 12 = \frac{2 \cdot h}{2} \cdot 2$$

$$\frac{24}{2} = \frac{2h}{2}$$

$$\boxed{12 = h}$$

# Examples

- 6. Find the base of a triangle whose area is 10 and height is 5.

$$A = \frac{bh}{2}$$

$$10 = \frac{b \cdot 5 \cdot 2}{2}$$

$$\frac{20}{5} = \frac{5b}{5}$$

$$4 = b$$

# Examples
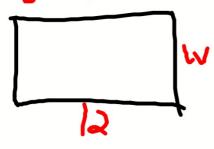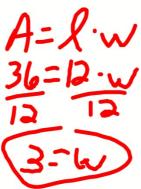
- 7. Find the length of a rectangle whose width is 7 and area is 42.

$$A = l \cdot w$$

$$\frac{42}{7} = \frac{l \cdot 7}{7}$$

$$6 = l$$

# Examples

- 8. Find the width of rectangle whose ~~height~~ **length** is 12 and area is 36.

$$A = \ell \cdot w$$

$$\frac{36}{12} = \frac{12 \cdot w}{12}$$

$$\boxed{3 = w}$$

(diagram: rectangle labeled with width $w$ on the right side and $12$ on the bottom)

# Examples

- 9. Find the height of a box whose others sides are 3 and 7 and volume is 42.

$$V = l \cdot w \cdot h$$

$$42 = 3 \cdot 7 \cdot h$$

$$\frac{42}{21} = \frac{21 \cdot h}{21}$$

$$\boxed{2 = h}$$

# Examples

- 10.  Find the length of a box whose height is 10, width is 7 and volume is 2100.

$$V = \ell \cdot w \cdot h$$

$$2100 = \ell \cdot 7 \cdot 10$$

$$\frac{2100}{70} = \frac{\ell \cdot 70}{70}$$

$$30 = \ell$$

# Homework

- Wkst 3.7 C # 1-6

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$$52 \cdot X + 32 = 60 \cdot X$$

$52x + 32 = 60x$
$-52x \quad\quad -52x$

$$\frac{32}{8} = \frac{8x}{8}$$

$$\boxed{X = 4 \text{ hrs}}$$

| Time | Friends Dist. | My Dist. |
|------|---------------|----------|
| 1 | 52+32=84 | 60 |
| 2 | 104+32=136 | 120 |
| 3 | 156+32=188 | 180 |
| 4 | 208+32=240 | 240 |

$D = r \cdot t$

$21t + 15t = 60$

$\dfrac{36t}{36} = \dfrac{60}{36}$

$t = 1.\overline{6} = 1\frac{2}{3} = \boxed{1\text{hr. }40\text{min}}$

60 miles

21mph

15mph

Ⓢ  $D = 21t$

+

Park

Ⓣ

$D = 15t$

35

25