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2. If the width of the sandbox was to decrease and the area was to remain 200 square feet, how would the length change?	
* Solve P = 2l + 2w for l * 1. If you have 100 feet of lumber to construct the sides of a sandbox, and the width is set at 25 feet, how long can the sandbox be? $100 = P$ $25 = w$ * 2. If the width of the sandbox was to increase, but the perimeter was to remain at 100 feet, how would the length have to change? Length would decrease	$P = 2l + 2w$ $-2w \quad -2w$ $\frac{P}{2} - \frac{2w}{2} = \frac{2l}{2}$ $\boxed{\frac{P}{2} - w = l}$ P - Perimeter l - length w - width $\frac{100}{2} - 25 = l$ $50 - 25 = l$ $25 = l$ $\frac{100}{2} - w = l$ Inc from 25 $50 - 35 = l$ $15 = l$

Solve V=lwh for w

1. In designing a box to have a volume of 500 cm³, length 10, and height 15, what is the width?

$$\frac{V}{lh} = \frac{lwh}{lh}$$

$$\boxed{\frac{V}{lh} = w}$$

V: Volume

$V = 500$
$l = 10$
$h = 15$

$$\frac{500}{10(15)} = w$$

$$\frac{500}{150} = w$$

$$\boxed{3\tfrac{1}{3} = w}$$

2. If the volume of the box was to increase, but the length and height were to remain unchanged, how would the width have to change?

width would increase

$l = 10$
$h = 15$
$V = 600$

$$\frac{600}{10(15)} = w$$

$$\frac{600}{150} = w \qquad w = 4$$

Solve $A = \frac{1}{2}bh$ for h

a. If a triangle has an Area of 100 cm and a base of 20 cm what will the height of the be.

A

b

$$(2)A = \cancel{(2)}\tfrac{1}{\cancel{2}}bh$$

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

$$\boxed{\frac{2A}{b} = h} \rightarrow \frac{2(100)}{20} = h \qquad h = \frac{200}{20} = 10$$

Area of a Δ

A = Area
b = base
h = height

Solve $A = \frac{1}{2}h(b_1 + b_2)$ for b_2

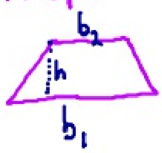
a. If a trapezoid has an area of 200 cm, a height of 10 cm, and a base of 5 cm, how big must the other base be.

$$(2)\ A = \cancel{(2)}\tfrac{1}{\cancel{2}}h(b_1 + b_2)$$

$$2A = hb_1 + hb_2$$
$$-hb_1 \quad -hb_1$$

$$\frac{2A - \cancel{h}b_1}{h} = \frac{\cancel{h}b_2}{\cancel{h}}$$

Area of a Trapezoid



$$\boxed{\frac{2A}{h} - b_1 = b_2}$$

$$\frac{2(200)}{10} - 5 = b_2$$

$$40 - 5 = b_2$$

$$35 = b_2$$