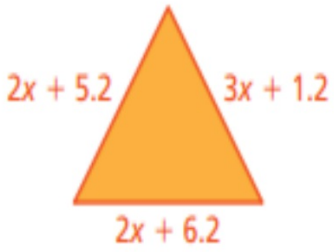
Skill check

PRECISION Is the triangle an equilateral triangle? Explain.



1-4
Rewriting equations and formulas

Vocabulary:

1.) literal equation

Solving for one variable in terms of the other variables.

$A = b \times h$ (rectangle)

$A = \frac{b \cdot h}{2}$ (triangle)

$V = Bh$ (volume of prism)

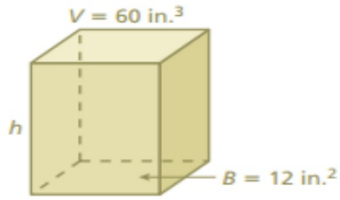
$V = \frac{Bh}{3}$ (pyramids)

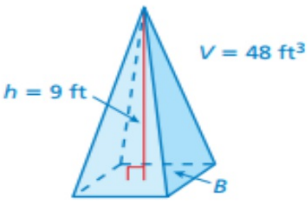
$S = 2lh + 2lw + 2wh$

$A = \pi r^2$ (circle)

Work with a partner.

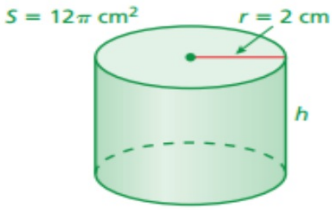
a.
- Write a formula for the volume V of a prism.
- Solve the formula for h.
- Use the new formula to find the height of the prism.

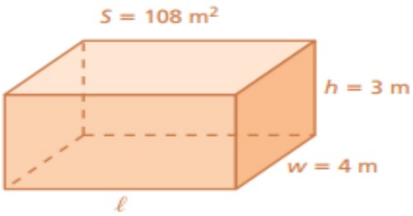




b.
- Write a formula for the volume V of a pyramid.
- Solve the formula for B.
- Use the new formula to find the area of the base of the pyramid.

c.
- Write a formula for the lateral surface area S of a cylinder.
- Solve the formula for h.
- Use the new formula to find the height of the cylinder.





d.
- Write a formula for the surface area S of a rectangular prism.
- Solve the formula for ℓ.
- Use the new formula to find the length of the rectangular prism.

EXAMPLE 1 Rewriting an Equation

Solve the equation $2y + 5x = 6$ for y.

	$2y + 5x = 6$	Write the equation.
Undo the addition. →	$2y + 5x - 5x = 6 - 5x$	Subtraction Property of Equality
	$2y = 6 - 5x$	Simplify.
Undo the multiplication. →	$\frac{2y}{2} = \frac{6 - 5x}{2}$	Division Property of Equality
	$y = 3 - \frac{5}{2}x$	Simplify.

Practice

Solve for y

1.) $5y - x = 10$

$\frac{5y}{5} = \frac{10}{5} + \frac{x}{5}$

$y = 2 + \frac{1}{5}x$

2.) $4x - 4y = 1$

$4x - 4y = 1$

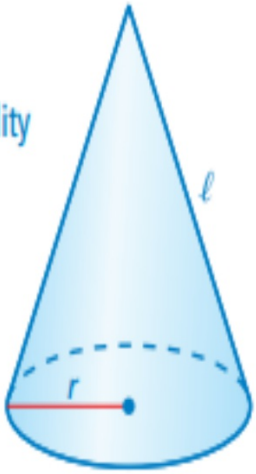
$\frac{-4y}{-4} = \frac{-4x}{-4} + \frac{1}{-4}$ $y = 1x -$

3.) $12 = 6x + 3y$

2 Rewriting a Formula

The formula for the surface area S of a cone is $S = \pi r^2 + \pi r\ell$. Solve the formula for the slant height ℓ.

$S = \pi r^2 + \pi r\ell$	Write the formula.
$S - \pi r^2 = \pi r^2 - \pi r^2 + \pi r\ell$	Subtraction Property of Equality
$S - \pi r^2 = \pi r\ell$	Simplify.
$\dfrac{S - \pi r^2}{\pi r} = \dfrac{\pi r\ell}{\pi r}$	Division Property of Equality
$\dfrac{S - \pi r^2}{\pi r} = \ell$	Simplify.



Solve the formula for the red variable.

4. Area of rectangle: $A = bh$

5. Simple interest: $I = Prt$

6. Surface area of cylinder: $S = 2\pi r^2 + 2\pi rh$

EXAMPLE 3 Rewriting the Temperature Formula

Solve the temperature formula for F.

	$C = \frac{5}{9}(F - 32)$	Write the temperature formula.
Use the reciprocal. →	$\frac{9}{5} \cdot C = \frac{9}{5} \cdot \frac{5}{9}(F - 32)$	Multiplication Property of Equality
	$\frac{9}{5}C = F - 32$	Simplify.
Undo the subtraction. →	$\frac{9}{5}C + 32 = F - 32 + 32$	Addition Property of Equality
	$\frac{9}{5}C + 32 = F$	Simplify.

∴ The rewritten formula is $F = \frac{9}{5}C + 32$.

Using perimeter and Area Formulas:

Area of a rectangle:
Perimeter of a rectangle:

Area of a Triangle:

Circumference of a circle:

Area of a trapezoid:

Area of a parallelogram:

Solve the equation for the red variable.

14. $d = rt$

15. $e = mc^2$

16. $R - C = P$

17. $A = \frac{1}{2}\pi w^2 + 2\ell w$

18. $B = 3\frac{V}{h}$

19. $g = \frac{1}{6}(w + 40)$