Algebra 1 2.8

Solve equations for given variables.

Use formulas to solve real-world problems

variable
equation
literal equation
solve for...
formula
dimensional analysis

$$2x + 5 = 13$$
$$-5 \quad -5$$
$$\frac{2x}{2} = \frac{8}{2}$$

How do we solve equations?

equation relates $x = 4$ parts in a problem

$A = \pi r^2$

8. $u = vw + z$, for v

10. $fg - 9h = 10j$, for g

$u = vw + z$

$-z \quad -z$

$\frac{u-z}{w} = \frac{vw}{w}$

$v = \frac{u-z}{w}$

$10m - p = -n$

$+p \quad +p$

$\frac{10m}{10} = \frac{p-n}{10}$

$= \frac{-n+p}{10}$

9. $x = b - cd$, for c

11. $10m - p = -n$, for m

$fg - 9h = 10j$

$+9h \quad +9h$

$\frac{fg}{f} = \frac{10j + 9h}{f}$

$g = \frac{10j}{f} + \frac{9h}{f}$

$x = b - cd$

$-b \quad -b$

$\frac{x-b}{-d} = \frac{-cd}{-d}$

$\frac{x-b}{-d} = c$

$\frac{x}{-d} + \frac{b}{d} = c$

12. $r = \frac{2}{3}t + v$, for t

13. $\frac{5}{9}v + w = z$, for v

14. $\frac{10ac - x}{11} = -3$, for a

15. $\frac{df + 10}{6} = g$, for f

$r = \frac{2}{3}t + v$

$-v \quad -v$

$\frac{r - v}{\frac{2}{3}} = \frac{\frac{2}{3}t}{\frac{2}{3}}$ $\quad t = \frac{(r - v)^{\frac{3}{2}}}{\frac{2}{3}\ \frac{3}{2}}$

$t = \frac{3}{2}(r - v)$

$\frac{5}{9}v + w = z$

$-w \quad -w$

$\frac{\frac{5}{9}v}{\frac{5}{9}} = \frac{z - w}{\frac{5}{9}}$ $= \frac{9}{5}(z - w)$

$$\frac{(10ac - x)}{N} = -3 \cdot 11 \quad a =$$

$$10ac - x = -33 + x$$

$$+x$$

$$\frac{10ac}{c} = \frac{-33 + x}{c}$$

$$\frac{10a}{10} = \frac{-33 + x}{10c} = \frac{x - 33}{10c} = \frac{x}{10c} - \frac{33}{10c}$$

6 meters → ? inches

$$6\,\text{m} \times \frac{100\,\text{cm}}{1\,\text{m}} \times \frac{1\,\text{in}}{2.54\,\text{cm}}$$

$$\frac{600}{2.54} = 236.2\,\text{in}$$