

Warm-Up:

1) The national average on the ACT is a 20.9 out of the maximum 36. The average for Vermont students was 8.1% higher than the national average. What is the average score for students in Vermont?

$$20.9(.081) = 1.7$$
$$20.9 + 1.7 = 22.6$$

2) Mr. Thompson plans on buying a used car for a price of \$8,400. He will receive an employee discount of 15%, but then have to pay a 5% sales tax. What is the final price of the car?

$$8400(.15) = \$1260$$
$$8400 - 1260 = \$7140$$
$$7140(.05) = \$357$$
$$7140 + 357 = \$7497$$

Equation Solving Review:

Solve.

1) $6 - b = 5b + 30$

$$\begin{array}{r} 6 = 6b + 30 \\ -30 \quad -30 \\ \hline -24 = 6b \end{array} \quad b = -4$$

2) $-3x - 4 = 7x - 6$

$$\begin{array}{r} \cancel{+3x} \quad \cancel{+3x} \\ -4 = 10x - 6 \\ +6 \quad +6 \\ \hline 2 = 10x \\ \hline 10 \quad 10 \\ \hline \frac{1}{5} = x \end{array}$$

Equation Solving Review:

Solve.

3) $18 - 4k = 10 - 4k$

$$\begin{array}{r} +4k \quad +4k \\ \hline 18 = 10 \end{array}$$

4) $4(2a - 1) = -10(a - 5)$

$$\begin{array}{r} 8a - 4 = -10a + 50 \\ +10a \quad +10a \\ \hline 18a - 4 = 50 \\ +4 \quad +4 \\ \hline 18a = 54 \\ \hline 18 \quad 18 \end{array} \quad a = 3$$

Section 2-8: Solving for a Specific Variable

Examples:

1) Solve $5b + 12c = 9$ for b .

$$\begin{array}{r} -12c \quad -12c \\ \hline 5b = 9 - 12c \\ \hline 5 \quad 5 \end{array} \quad b = \frac{9 - 12c}{5}$$

2) Solve $7x - 2z = 4 - xy$ for x .

$$\begin{array}{r} +xy \quad +xy \\ \hline 7x + xy - 2z = 4 \\ +2z \quad +2z \\ \hline 7x + xy = 4 + 2z \\ x(7 + y) = 4 + 2z \\ \hline 7 + y \quad 7 + y \end{array} \quad x = \frac{4 + 2z}{7 + y}$$

Examples:

A car's fuel economy E (miles per gallon) is given by the formula $E = m/g$ where m is the number of miles driven and g is the gallons of fuel used.

3) Solve the formula for m .

$$g(E) = \left(\frac{m}{g}\right)g$$
$$gE = m$$

4) If Claudia's car has an average fuel consumption of 30 miles per gallon and she used 9.5 gallons, how far did she drive?

$$m = gE$$
$$m = 9.5(30)$$
$$m = 285 \text{ miles}$$

The formula for the volume V of a cylinder is $V = \pi r^2 h$, where r is the radius, and h is the height.

5) Solve the formula for h .

$$\frac{V}{\pi r^2} = \frac{\pi r^2 h}{\pi r^2}$$
$$\frac{V}{\pi r^2} = h$$

6) What is the height of a cylindrical swimming pool that has a radius of 12 feet and a volume of 1810 cubic feet?

$$h = \frac{V}{\pi r^2}$$
$$h = \frac{1810}{(3.14)(12)^2} = \frac{1810}{(3.14)144} = \frac{1810}{452.16}$$
$$h \approx 4 \text{ ft}$$

Homework: Worksheet 2-5, 2-8

2-8 Vocab

Quiz 2-6, 2-7, 2-8 Next Class