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17. P R88

$$\checkmark \text{ You + Coworker} = 645$$

$$x + .15x + x = 645$$

$$2.15x = 645$$

$$x = \$300$$

$$\$345$$

Coworker

You

37 15% discount

$$.85x = 1200$$

Original price = x

$$x - .15x = 1200$$

$$\frac{.85x}{.85} = \frac{1200}{.85}$$

$$x = \$ 1411.\underline{76}$$

$$49. \quad d = rt$$

$$\frac{3.84 \times 10^8}{3.0 \times 10^8} = \frac{3.0 \times 10^8 t}{3.0 \times 10^8}$$

$$1.28 = t$$

$$1.28 \text{ sec}$$

$$b). \quad V = \pi r^2 h$$

$$603.2 = \pi (2)^2 h$$

$$\frac{603.2}{4\pi} = \frac{4\pi h}{4\pi}$$

$$48 = h$$

48 feet

$$65 \quad d = r t$$

$$d = 26.21875$$

$$\frac{385}{1760}$$

$$t = \frac{2.12917}{7.75}$$

$$\frac{26.21875}{2.12917} = r \left(\frac{2.12917}{2.12917} \right)$$

$$12.325 = r$$

mph

R2.2 Quadratic Equations

General $ax^2 + bx + c = 0$

$$a \neq 0$$

Zero-Factor Property

$$0 \cdot b = 0$$

$$ab = 0$$

$$a = 0 \quad \text{or} \quad b = 0$$

Solve

$$x^2 - 3x - 10 = 0$$

Set = 0

$$\begin{array}{l} 1 \cdot 10 \\ 2 \cdot 5 \end{array}$$

Factor

$$(x + 2)(x - 5) = 0$$

Set each
factor = 0

$$x + 2 = 0 \quad \text{or} \quad x - 5 = 0$$

$$\begin{array}{cc} -2 & 2 \\ +5 & +5 \end{array}$$

Solve

$$x = -2 \quad \text{or} \quad x = 5$$

$$6x^2 - 3x = 0$$

Set = 0

Factor
GCF

$$3x(2x - 1) = 0$$

Set each
factor = 0

$$3x = 0$$

$$2x - 1 = 0$$

$$\frac{2x}{2} = \frac{1}{2}$$

Solve

$$x = 0$$

$$x = \frac{1}{2}$$

$$2x^2 = 19x + 33$$

Set = 0

$$2x^2 - 19x - 33 = 0$$

Factor

$$(2x + 3)(x - 11) = 0$$

Set each
factor = 0

$$2x + 3 = 0 \text{ or } x - 11 = 0$$

$$\frac{2x}{2} = \frac{-3}{2} \quad x = 11$$

$$x = -\frac{3}{2} \text{ or } x = 11$$

$$x^2 = 9$$

$\sqrt{\quad}$ of
both sides

$$\sqrt{x^2} = \sqrt{9}$$

$$x = \pm 3$$

\pm

$$16x^2 - 9 = 0$$

$$\sqrt{16x^2} = \sqrt{9}$$

$$\frac{4x}{4} = \pm \frac{3}{4}$$

$$x = \pm \frac{3}{4}$$

or

$$\frac{16x^2}{16} = \frac{9}{16}$$

$$\sqrt{x^2} = \sqrt{\frac{9}{16}}$$

$$x = \pm \frac{3}{4}$$