

Pg. 564

$$25 \quad 4a^2 - 8a = 24$$

$$a^2 - 2a = 6$$

$$\left(\frac{b}{2}\right)^2 = \left(\frac{-2}{2}\right)^2 = 1$$

$$a^2 - 2a + 1 = 6 + 1$$

$$(a-1)^2 = 7$$

$$\sqrt{(a-1)^2} = \pm\sqrt{7}$$

$$a-1 = \pm\sqrt{7}$$

$$a-1 = \pm 2.65$$

$$a-1 = 2.65 \text{ or } a-1 = -2.65$$

$$\boxed{a = 3.65}$$

$$\boxed{a = -1.65}$$

$$27) \quad \frac{5n^2 - 3n - 15}{5} = \frac{10}{5}$$

$$n^2 - \frac{3}{5}n - 3 = 2$$

$$n^2 - \frac{3}{5}n = 5$$

$$-\frac{3}{5} = -0.6 \quad \left(\frac{-0.6}{2}\right)^2 = .09$$

$$n^2 - .6n + .09 = 5.09$$

$$\sqrt{(n - .09)^2} = \sqrt{5.09}$$

$$n - .09 = \pm 2.26$$

$$n - .09 = 2.26 \quad n - .09 = -2.26$$

$$\boxed{n = 2.35} \quad \boxed{n = -2.17}$$

$$29. \quad \frac{3r^2 + 18r}{3} = \frac{21}{3}$$

$$r^2 + 6r = 7$$

$$\left(\frac{b}{2}\right)^2 = \left(\frac{6}{2}\right)^2 = 3^2 = 9$$

$$r^2 + 6r + 9 = 7 + 9$$

$$\sqrt{(r+3)^2} = \sqrt{16}$$

$$r+3 = \pm\sqrt{16}$$

$$r+3 = 4 \quad r+3 = -4$$

$$\boxed{r = 1} \quad \boxed{r = -7}$$

$$3) \quad x(2x+5) = 420$$

$$\frac{2x^2 + 5x}{2} = \frac{420}{2}$$

$$x^2 + 2.5x = 210$$

$$\left(\frac{b}{2}\right)^2 = \left(\frac{2.5}{2}\right)^2 = 1.56$$

$$x^2 + 2.5x + 1.56 = 211.56$$

$$\sqrt{(x + 1.25)^2} = \sqrt{211.56}$$

$$x + 1.25 = \pm\sqrt{211.56}$$

$$x + 1.25 = \pm 14.56$$

$$x + 1.25 = 14.56 \quad x + 1.25 = -14.56$$

$$x = 13.31 \quad x = -15.81$$

$$\therefore \hat{=} 13.3$$



$$35. s^2 + 5s = -11$$

$$s^2 + 5s + 6.25 = -11 + 6.25$$

$$\left(\frac{s}{2}\right)^2 = s^2 + 5s + 6.25 = -4.75$$

NO SOLUTION

CANNOT  $\sqrt{\quad}$  A  
NEGATIVE #

$$37. z^2 - 8z = -13$$

$$\left(\frac{b}{2}\right)^2 = \left(\frac{-8}{2}\right)^2 = 16$$

$$z^2 - 8z + 16 = -13 + 16$$

$$z^2 - 8z + 16 = 3$$

$$\sqrt{(z-4)^2} = \pm\sqrt{3}$$

$$z-4 = +\sqrt{3} \quad z-4 = -\sqrt{3}$$

$$z-4 = 1.73 \quad \text{or} \quad z-4 = -1.73$$

$$z = 5.73 \quad \text{or} \quad z = 2.27$$

$$42. s^2 + 9s = -20$$

$$\left(\frac{b}{2}\right)^2 = \left(\frac{9}{2}\right)^2 = (4.5)^2 = 20.25$$

$$s^2 + 9s + 20.25 = -20 + 20.25$$

$$\sqrt{(s+4.5)^2} = \pm\sqrt{.25}$$

$$s+4.5 = \pm .5$$

$$s+4.5 = .5 \quad \text{or} \quad s+4.5 = -.5$$

$$s = -4 \quad \text{or} \quad s = -5$$

$$43. 4x^2 + 10x = 8$$

ONE NEEDED

TO DIVID

EVERYTHING

By 4 FIRST

$$47. f(x) = -\frac{1}{2}x^2 + 2x + 6$$

$$-6 + 5 = -\frac{1}{2}x^2 + 2x + 6 - 6$$

$$-2 - 1 = -\frac{1}{2}x^2 + 2x$$

$$2 = x^2 - 4x$$

$$\left(\frac{b}{2}\right)^2 = \left(\frac{-4}{2}\right)^2 = (-2)^2 = 4$$

$$2 + 4 = x^2 - 4x + 4$$

$$\pm\sqrt{6} = \sqrt{(x-2)^2}$$

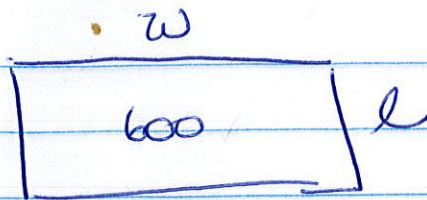
$$\pm 2.45 = x - 2$$

$$2.45 = x - 2 \quad -2.45 = x - 2$$

$$4.45 = x \quad \text{or} \quad -.45 = x$$



33



$w = \text{width}$

a)  $l = 75 - 2w$

b)  $w(-2w + 75) = 600$

$$-2w^2 + 75w = 600$$

$$w^2 - 37.5w = -300$$

$$\left(\frac{b}{2}\right)^2 = \left(\frac{-37.5}{2}\right)^2 = 351.56$$

$$w^2 - 37.5w + 351.56 = -300 + 351.56$$

$$(w - 18.75)^2 = -300 + 351.56$$

$$\sqrt{(w - 18.75)^2} = \pm \sqrt{51.56}$$

$$w - 18.75 = \pm 7.18$$

$$w - 18.75 = 7.18 \quad \text{or} \quad w - 18.75 = -7.18$$

$$w = 25.9$$

$$w = 11.65$$

c) length

$$l = 75 - 2w$$

$$l = 75 - 2(25.9) \quad \text{or} \quad l = 75 - 2(11.65)$$

$$l = 23.2 \quad \text{or} \quad l = 51.7$$