

6.4 #21

$$10 \$ \longrightarrow 1 \text{ ft}^2$$

$$1500 \$ \longrightarrow x \text{ ft}^2$$

$$x = \frac{1500}{10} = 150 \text{ ft}^2$$

$$(x)(y) = 150$$

$$y = x + 5$$

$$(x)(x+5) = 150$$

$$x^2 + 5x - 150 = 0$$

$$x = 10 \text{ ft}$$

$$y = x + 5 = 10 + 5 = 15 \text{ ft}$$

6.4 #7 $(x)(y) = 149 \text{ in}^2$ $y = x + 10$

$$(x+10)(x) = 149$$

$$x^2 + 10x - 149 = 0$$

$$x = 8.19 \text{ in}$$

$$y = x + 10 = 8.19 + 10 = 18.19$$

#13 $\frac{1}{x} + \frac{1}{y} = \frac{1}{2}$

$$y = 5\frac{1}{3} + x$$

$$\frac{1}{x} + \frac{1}{(5.33+x)} = \frac{1}{2}$$

$$= 5.33 + x$$

$$\frac{1(5.33+x) + 1(x)}{x(5.33+x)} = \frac{1}{2} \rightarrow \frac{2x + 5.33}{x^2 + 5.33x} \neq \frac{1}{2}$$

$$x^2 + 5.33x = 2(2x + 5.33) \rightarrow 4x + 10.6$$

$$x^2 + 5.33x - 4x - 10.6 = 0$$

$$x = 2.66 \text{ h}$$

$$x^2 + 1.33x - 10.6$$

$$y = 5\frac{1}{3} + x = 5.33 + 2.66 = 8$$

$$(X) \left(85 - \frac{3}{2} X \right) = 1200$$

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$$85X - \frac{3}{2} X^2 = 1200$$

$$\frac{3}{2} X^2 - 85X + 1200 = 0$$

$$X = 30 \text{ or } X = \frac{80}{3}$$

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$$85 - \frac{3}{2} X$$

$$3x^4 - 4Lx^3 + L^2x^2 = d = 0$$

$$x^2(3x^2 - 4Lx + L^2) = 0$$

$$3x^2 - 4Lx + L^2 = 0$$

$$(3x^2 - 3Lx) (-Lx + L^2) = 0$$

$$3x(x-L) -L(x-L) = 0$$

$$(x-L)(3x-L) = 0$$

$$x^2 = 0$$

$$\begin{aligned} \#7 \quad R_1 + R_2 = 150 \Omega &\Rightarrow (R_1 - 10) + R_1 = 150 \Omega \Rightarrow \\ 2R_1 - 10 = 150 &\Rightarrow 2R_1 = 150 + 10 \Rightarrow 2R_1 = 160 \Rightarrow R_1 = \frac{160}{2} = 80 \Omega \end{aligned}$$

$$\begin{aligned} \#15 \quad V_1 + V_2 = 55.1 \text{ V} &\Rightarrow V_1 = 55.1 - V_2 \Rightarrow 4V_2 - 3(55.1 - V_2) = 9.7 \\ 4V_2 - 3V_1 = 9.7 \text{ V} &\quad 4V_2 - 165.3 + 3V_2 = 9.7 \Rightarrow \\ 4V_2 + 3V_2 = 9.7 + 165.3 &\Rightarrow 7V_2 = 175 \Rightarrow V_2 = \frac{175}{7} = 25 \end{aligned}$$

$$\begin{aligned} \#17 \quad X + y = 215 &\quad \leftarrow \times 4 \\ 5X + 4y = 1050 &\quad \leftarrow + \\ \hline &\quad -4X - 4y = -860 \\ &\quad +5X + 4y = 1050 \\ \hline &\quad X = 190 \end{aligned}$$

$$\begin{aligned} \#21 \quad X + y = 62 &\quad \rightarrow 4X + 2 = 62 \Rightarrow 4X = 60 \Rightarrow X = \frac{60}{4} = 15 \\ (2 + 3X) + X = 62 &\quad \leftarrow \end{aligned}$$

$$\begin{aligned} \#25 \quad X + y = 13 &\quad \Rightarrow X = 13 - y \\ 200X + 250y = 2950 &\quad 200(13 - y) + 250y = 2950 \\ 2600 - 200y + 250y = 2950 &\Rightarrow 50y = 2950 - 2600 \\ 50y = 350 = y = \frac{350}{50} &= 7 \end{aligned}$$