

Final Exam Review 2

$$1. \frac{\cancel{(x+7)}(\cancel{x-4})}{2(\cancel{x+7})} \cdot \frac{2x(x+3)}{\cancel{(x+7)}(x+4)} = \boxed{\frac{x(x+3)}{(x+4)}}$$

$$2. \frac{\cancel{(x-10)}(\cancel{x-1})}{\cancel{x^4}x^2} \cdot \frac{x^2}{x(\cancel{x-10})} = \boxed{\frac{x-1}{x^3}}$$

$$3. \frac{3(\cancel{x+2})}{(x-6)(\cancel{x+2})} = \frac{3}{x-6} \quad \boxed{x \neq 6}$$

4. 0

5. $16x^6$

$$6. \left(\sqrt[3]{x+4}\right)^3 = (4)^3$$

$$x+4 = 64$$

$$\begin{array}{r} -4 \quad -4 \\ \hline \end{array}$$

$$\boxed{x = 60}$$

$$7. 1419.52 = Pe^{.042(4)}$$

$$1419.52 = Pe^{.168}$$

$$\frac{1419.52}{e^{.168}} = P$$

$$\boxed{\text{about } \$1200}$$

$$8. \frac{x^2 - 100}{x + 10} = \frac{(x - 10)(x + 10)}{x + 10} = \boxed{x - 10}$$

$$9. a. \frac{16a^{-1}b^2c}{\frac{16b^2c}{a}}$$

$$b. \frac{8x^3y^6}{4x^2y} = \boxed{2xy^5}$$

$$c. \frac{\sqrt{4x^2y}}{2x\sqrt{y}} \text{ or } 2xy^{1/2}$$

$$d. \left(\frac{64x^6y^3}{27x^3y^9} \right)^{1/3}$$

$$\frac{4x^2y}{3xy^3} = \boxed{\frac{4x}{3y^2}}$$

$$e. x^3y^{-3/2} = \boxed{\frac{x^3}{y^{3/2}}}$$

$$f. \frac{2x^{9/2}}{2x^{1/2}} = \boxed{x^4}$$

$$10. a. \frac{2\sqrt{b-8}}{2} = \frac{8}{2}$$

$$(\sqrt{b-8})^2 = (4)^2$$

$$b-8 = 16$$

$$+8 \quad +8$$

$$\boxed{b=24}$$

$$b. \sqrt{x+1} + 10 = 10$$

$$\begin{array}{r} -10 \quad -10 \\ \hline \end{array}$$

$$(\sqrt{x+1})^2 = (0)^2$$

$$x+1 = 0$$

$$\boxed{x=-1}$$

$$c. 6 + \sqrt{31-6v} = v$$

$$\begin{array}{r} -6 \quad \quad \quad -6 \\ \hline \end{array}$$

$$(\sqrt{31-6v})^2 = (v-6)^2$$

$$31-6v = (v-6)(v-6)$$

$$31-6v = v^2 - 12v + 36$$

$$\begin{array}{r} -31 \quad +6v \quad \quad \quad +6v -31 \\ \hline \end{array}$$

$$0 = v^2 - 6v + 5$$

$$0 = (v-5)(v-1)$$

$$\boxed{v=5 \quad | \quad v=1}$$

$$d. (\sqrt{-6-x})^2 = (\sqrt{-16-2x})^2$$

$$-6-x = -16-2x$$

$$\begin{array}{r} +2x \quad \quad \quad +2x \\ \hline \end{array}$$

$$-6+x = -16$$

$$+6 \quad \quad \quad +6$$

$$\boxed{x=-10}$$

11. a. $2y\sqrt{2x}$

b. $\frac{4^{-2}x^4y^{-6}}{3^{-2}x^{-8}y^{-4}}$

c. $\frac{\sqrt[3]{16xy^5}}{\sqrt{2 \cdot 2 \cdot 2 \cdot 2x \cdot y \cdot y \cdot y \cdot y}}$

$\frac{9x^{12}}{16y^2}$

$2y\sqrt[3]{2xy^2}$

d. $64^{2/3} - (\frac{1}{4})^2$
 $(4^3)^{2/3}$

$4^2 - \frac{1}{16}$

$16 - \frac{1}{16}$

$\frac{256}{16} - \frac{1}{16}$

$\frac{255}{16}$

12. a. $\frac{4x}{x(x-3)} + \frac{6}{3(x-3)}$

LCD: $3x(x-3)$

$\frac{12x}{3x(x-3)} + \frac{6x}{3x(x-3)} = \frac{18x}{3x(x-3)} = \frac{6}{x-3}$

$$12. \quad b. \quad \frac{5x}{(x-3)(x+3)} - \frac{4x}{(x+2)(x+3)}$$

$$\text{LCD: } (x-3)(x+3)(x+2)$$

$$\frac{5x(x+2)}{(x-3)(x+3)(x+2)} - \frac{4x(x-3)}{(x-3)(x+3)(x+2)}$$

$$\frac{5x^2 + 10x - 4x^2 + 12x}{(x-3)(x+3)(x+2)}$$

$$\boxed{\frac{x^2 + 22x}{(x-3)(x+3)(x+2)}}$$

