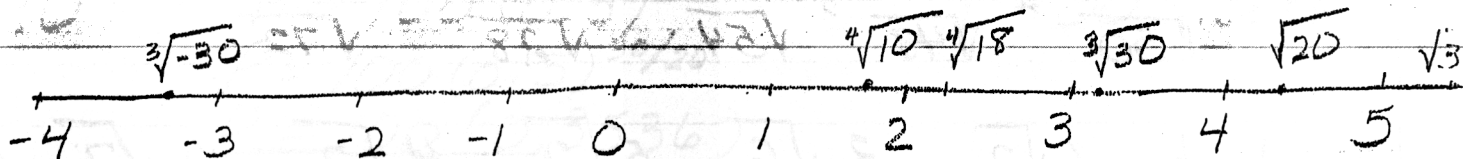


Ch 4 Review

p. 246/247 # 6, 9, 11, 12, 14, 15, 17, 18, 19, 20, 24, 28, 29

- 6 a) rational -2 b) rational 17
 c) rational $\sqrt{16} = 4$ d) Irrational $\sqrt{32} = 5.656854\dots$
 e) rational 0.756 f) rational $12.\bar{3}$
 g) rational 0 h) Irrational $\sqrt{81} = 4.326748\dots$
 i) Irrational $\pi = 3.1415926\dots$

9. $\sqrt[3]{30} = 3.11$ $\sqrt{20} = 4.47$ $\sqrt[4]{18} = 2.06$ $\sqrt[3]{-30} = -3.11$
 $\sqrt{30} = 5.48$ $\sqrt[4]{10} = 1.79$



11a) $\frac{\sqrt{150}}{\sqrt{25}\sqrt{6}}$
 $\frac{5\sqrt{6}}{5\sqrt{6}}$

b) $\frac{\sqrt[3]{135}}{\sqrt[3]{27}\sqrt[3]{5}}$
 $\frac{3\sqrt[3]{5}}{3\sqrt[3]{5}}$

c) $\frac{\sqrt{112}}{\sqrt{16}\sqrt{7}}$
 $\frac{4\sqrt{7}}{4\sqrt{7}}$

d) $\frac{\sqrt[4]{16a^2}}{\sqrt[4]{81}\sqrt[4]{2}}$
 $\frac{3\sqrt[4]{2}}{3\sqrt[4]{2}}$

12 a) $\frac{6\sqrt{5}}{\sqrt{6^2 \cdot 5}}$
 $\frac{6\sqrt{5}}{\sqrt{180}}$

b) $\frac{3\sqrt{14}}{\sqrt{3^2 \cdot 14}}$
 $\frac{3\sqrt{14}}{\sqrt{126}}$

c) $\frac{4\sqrt[3]{3}}{\sqrt[3]{4^3 \cdot 3}}$
 $\frac{4\sqrt[3]{3}}{\sqrt[3]{192}}$

d) $\frac{2\sqrt[4]{2}}{\sqrt[4]{2^4 \cdot 2}}$
 $\frac{2\sqrt[4]{2}}{\sqrt[4]{32}}$

$$14. \quad \sqrt{300} = \sqrt{3} \sqrt{100}$$

$$\frac{\sqrt{3}}{\sqrt{3}} \frac{\sqrt{50} \cdot \sqrt{50}}{\sqrt{2} \sqrt{25} \sqrt{2} \sqrt{25}} \leftarrow \sqrt{100} \text{ is } 10$$

$$\sqrt{3} \text{ is Not } 3 \rightarrow 3$$

correct $\sqrt{300} = \sqrt{100} \sqrt{3}$
 $10 \sqrt{3}$

15. $5\sqrt{2}, 4\sqrt{3}, 3\sqrt{6}, 2\sqrt{7}, 6\sqrt{2}$
 change all to entire radicals

$$\frac{\sqrt{5^2 \cdot 2}}{\sqrt{50}}, \frac{\sqrt{4^2 \cdot 3}}{\sqrt{48}}, \frac{\sqrt{3^2 \cdot 6}}{\sqrt{54}}, \frac{\sqrt{2^2 \cdot 7}}{\sqrt{28}}, \frac{\sqrt{6^2 \cdot 2}}{\sqrt{72}}$$

greatest $6\sqrt{2}, 3\sqrt{6}, 5\sqrt{2}, 4\sqrt{3}, 2\sqrt{7}$ less

17 a) $12^{1/4} = \sqrt[4]{12}$

b) $(-50)^{5/3} = (\sqrt[3]{-50})^5$

c) $1.2^{0.5} = 1.2^{1/2} = \sqrt{1.2}$

d) $\left(\frac{3}{8}\right)^{1/3} = \sqrt[3]{\frac{3}{8}}$

18 a) $\sqrt{1.4} = 1.4^{1/2}$

b) $\sqrt[3]{13^2} = 13^{2/3}$

c) $(\sqrt[5]{2.5})^4 = 2.5^{4/5}$

d) $\left(\sqrt[4]{\frac{2}{5}}\right)^3 = \left(\frac{2}{5}\right)^{3/4}$

$$19 \text{ a) } 16^{0.25} = 16^{25/100} = 16^{1/4} = \sqrt[4]{16} = \boxed{2}$$

$$\text{b) } 1.44^{1/2} = \sqrt{1.44} = \boxed{1.2}$$

$$\text{c) } (-8)^{5/3} = (\sqrt[3]{-8})^5 = (-2)^5 = \boxed{-32}$$

$$\text{d) } \left(\frac{9}{16}\right)^{3/2} = \left(\sqrt{\frac{9}{16}}\right)^3 = \left(\frac{3}{4}\right)^3 = \boxed{\frac{27}{64}}$$

$$20 \quad P = 100(0.5)^{t/20} \quad t = 30 \text{ weeks}$$
$$P = 100(0.5)^{30/20}$$
$$P = 100(0.3536)$$
$$\boxed{P = 35.36}$$

$$24. \text{ a) } 2^{-2} = \frac{1}{2^2} = \boxed{\frac{1}{4}}$$

$$\text{b) } \left(\frac{2}{3}\right)^{-3} = \left(\frac{3}{2}\right)^3 = \boxed{\frac{27}{8}}$$

$$\text{c) } \left(\frac{4}{25}\right)^{-3/2} = \left(\frac{25}{4}\right)^{3/2} = \left(\sqrt{\frac{25}{4}}\right)^3 = \left(\frac{5}{2}\right)^3 = \boxed{\frac{125}{8}}$$

$$28 \text{ a) } (3m^4n)^2 = \boxed{9m^8n^2}$$

$$\text{b) } \left(\frac{x^2y}{y^{-2}}\right)^{-2} = (x^2yy^2)^{-2} = (x^2y^3)^{-2} = \frac{1}{(x^2y^3)^2} = \boxed{\frac{1}{x^4y^6}}$$

$$\text{c) } (16a^2b^6)^{-1/2} = \left(\frac{1}{16a^2b^6}\right)^{1/2} = \frac{1}{\sqrt{16} a^{2 \cdot \frac{1}{2}} b^{6 \cdot \frac{1}{2}}} = \boxed{\frac{1}{4ab^3}}$$

$$\text{d) } \left(\frac{r^3s^{-1}}{s^{-2}r^{-2}}\right)^{-2/3} = \left(\frac{r^3r^2 \cdot s^2}{s}\right)^{-2/3} = (r^5s)^{-2/3}$$

$$\left(\frac{1}{r^5s}\right)^{2/3} = \boxed{\frac{1}{r^{10/3}s^{2/3}}}$$

$$29 \text{ a) } (a^3b)(a^{-1}b^4) = \boxed{a^2b^5}$$

$$\text{b) } (x^{1/2}y)(x^{3/2}y^{-2}) = x^{4/2}y^{-1} = x^2y^{-1} = \boxed{\frac{x^2}{y}}$$

$$\text{c) } \frac{a^3}{a^5} \cdot a^{-3} = a^{-2} \cdot a^{-3} = a^{-5} = \boxed{\frac{1}{a^5}}$$

$$\text{d) } \frac{x^2y}{x^{1/2}y^{-2}} = x^{2-\frac{1}{2}}y \cdot y^2 = x^{\frac{4}{2}-\frac{1}{2}}y^3 = \boxed{x^{3/2}y^3}$$