

ALGEBRA I (SECTION 7.3)

11. $(n^4)^8 = n^{32}$

13. $(x^{\frac{2}{5}})^{10} = x^{\frac{20}{5}} = x^4$

15. $(x^{\frac{3}{10}})^{-\frac{1}{2}} = x^{-\frac{3}{10}}$
 $= \frac{1}{x^{\frac{3}{10}}}$

17. $(z^8)^0 z^{\frac{1}{2}}$
 $= z^0 z^{\frac{1}{2}} = z^{\frac{1}{2}}$

19. $(c^3)^{\frac{1}{4}} (d^3)^0$
 $= c^{\frac{3}{4}} d^0 = c^{\frac{3}{4}}$

21. $(m^3)^{-1} (x^{\frac{1}{3}})^{\frac{1}{4}}$
 $= m^{-3} x^{\frac{1}{12}} = \frac{x^{\frac{1}{12}}}{m^3}$

23. $(7a)^{-2} = 7^{-2} a^{-2}$
 $= \frac{1}{49a^2}$

25. $(36g^4)^{-\frac{1}{2}} = 36^{-\frac{1}{2}} g^{-\frac{4}{2}}$
 $= \frac{1}{6g^2}$

27. $(2y^{\frac{7}{9}})^{-3} = 2^{-3} y^{-\frac{21}{9}}$
 $= \frac{1}{8y^{\frac{7}{3}}}$

29. $(y^2 z^{-3})^{\frac{1}{6}} (y^3)^2$
 $= y^{\frac{2}{6}} z^{-\frac{3}{6}} y^6$
 $= y^{\frac{14}{3}} z^{-\frac{1}{2}}$
 $\frac{2}{6} + \frac{6}{1} = \frac{2}{6} + \frac{36}{6} = \frac{38}{6} = \frac{19}{3}$

31. $4j^2 k^6 (aj^{11})^3 k^5$
 $= 4j^2 k^{11} 8j^{33}$
 $= 32j^{35} k^{11}$

33. $(aj^2 k^4)^{-5} (k^{-1} j^7)^6$
 $= a^{-5} j^{-10} k^{-20} k^{-6} j^{42}$
 $= a^{-5} j^{32} k^{-26}$
 $= \frac{j^{32}}{32a^5 k^{26}}$

43. $(b^2)^x = b^8$
 $x = 4$

45. $(x^y)^7 = x^6$
 $y = \frac{6}{7}$

$$47. (y^{-4})^x = y^{\frac{1}{2}}$$

$$x = -\frac{1}{8}$$

$$49. (5x^y)^a = 25x^{-4}$$

$$y = -2$$

$$51. (m^a n^3)^x = \frac{1}{m^6 n^4}$$

$$x = -3$$

$$53. 3^a (3x)^3$$

$$= 9(27x^3) = 243x^3$$

$$55. (b^{\frac{1}{6}})^3 b^{\frac{1}{6}}$$

$$= b^{\frac{3}{6}} b^{\frac{1}{6}} = b^{\frac{4}{6}} = b^{\frac{2}{3}}$$

$$57. (-2a^{\frac{2}{3}}b)^2 (ab^{\frac{1}{3}})^3$$

$$= -2^2 a^{\frac{4}{3}} b^2 a^3 b^{\frac{2}{3}}$$

$$= -8a^{\frac{6}{3} + \frac{3}{1}} b^{\frac{6}{3} + \frac{2}{3}} = -8a^5 b^{\frac{8}{3}}$$

$$= -8a^5 b^{\frac{8}{3}}$$

$$99. 4xy^a 0^4 (-y)^{-3}$$

$$= 0$$

$$101. (3^7)^a (3^{-4})^3$$

$$= 3^{7a} \cdot 3^{-12}$$

$$= 3^a = 9$$