

# Algebra II/Pre–Calculus *Honors*

## Assignment P.2

Section Pages: 24 & 25

Problems:

24, 26, 28, 32–34, 37*a*, 38*a*, 40, 42, 46, 49, 54, 56, 59, 63, 66, 68, 70

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24.)

*a.*)

$$\frac{7x^2}{x^3} \implies \frac{7}{x}$$

*b.*)

$$\frac{12(x+y)^3}{9(x+y)} \implies \frac{4}{3}(x^2 + 2xy + y^2)$$

26.)

*a.*)

$$[(x^2y^{-2})^{-1}]^{-1} \implies \frac{x^2}{y^2}$$

*b.*)

$$(5x^2z^6)^3(5x^2z^6)^{-3} \implies \frac{125x^6z^{18}}{125x^6z^{18}} = 1$$

28.)

**a.)**

$$(4y^{-2})(8y^4) \implies 2y^2$$

**b.)**

$$(z+2)^{-3}(z+2)^{-1} \implies \frac{1}{z+2^4}$$

32.)

$$-0.000125 \implies 1.25 \times 10^{-4}$$

33.)

$$3.14 \times 10^{-4} \implies 0.000314$$

34.)

$$-2.058 \times 10^6 \implies -2,058,000$$

37.)

**a.)**

$$(2.0 \times 10^9)(3.4 \times 10^{-4}) \implies 6.8 \times 10^5 = 680,000$$

38.)

**a.)**

$$\frac{6.0 \times 10^8}{3.0 \times 10^{-3}} \implies 2.0 \times 10^5 = 200,000$$

40.)

**a.)**

$$\sqrt[3]{27} \implies 3$$

**b.)**

$$(\sqrt{36})^3 \implies 216$$

42.)

**a.)**

$$\sqrt{12} \cdot \sqrt{3} \implies \sqrt{36} = 6$$

**b.)**

$$\sqrt[4]{(3x^2)^4} \implies 3x^2$$

46.)

**a.)**

$$\sqrt{\frac{18^2}{z^3}} \implies 18z\sqrt{\frac{1}{2}}$$

**b.)**

$$\sqrt{\frac{32a^4}{b^2}} \implies 4a^2b\sqrt{2}$$

49.)

**a.)**

$$2\sqrt{20x^2} + 5\sqrt{125x^2} \implies 4x\sqrt{5} + 25x\sqrt{5} = 29x\sqrt{5}$$

**b.)**

$$8\sqrt{147x} - 3\sqrt{48x} \implies 56\sqrt{3x} - 12\sqrt{3x} = 44\sqrt{3x}$$

54.)

$$\frac{3}{\sqrt{5}+\sqrt{6}} \implies -3(\sqrt{5} - \sqrt{6}) = 3(-\sqrt{5} + \sqrt{6})$$

56.)

$$\frac{\sqrt{7}-3}{4} \implies \frac{1}{2(-3-\sqrt{7})}$$

59.)

RADICAL FORM	RATIONAL EXPONENT FORM
$\frac{3}{\sqrt[3]{x^2}}$	$3x^{-2/3}$

63.)

a.)

$$\sqrt[4]{3^2} \implies 3^{2/4}$$

b.)

$$\sqrt[6]{(x+1)^4} \implies (x+1)^{2/3}$$

66.)

a.)

$$\sqrt{\sqrt{243(x+1)}} \implies 3\sqrt[4]{3x+3}$$

b.)

$$\sqrt{\sqrt[3]{10a^7b}} \implies \sqrt[6]{10a^7b} = a\sqrt{10ab}$$

68.)

a.)

$$(4x+3)^{5/2}(4x+3)^{-5/3} \implies (4x+3)^{5/6}$$

b.)

$$(4x+3)^{-5/2}(4x+3)^{2/3} \implies (x+1)^{-11/6}$$

70.)

**Package A is a cube with a volume of 500 cubic inches. Package B is a cube with a volume of 250 cubic inches. Is the length  $x$  of a side of package A greater than, less than, or equal to twice the length of a side of package B? Explain.**

*It is less than; in order to find a side length of both packages, a cube root computation is required. To find a side length for package A, take the cube root of 500. This approximately equals 7.93. To find a side length of package B, take the cube root of 250. This roughly equals 6.3. Then, double 6.3. This makes it 12.6. 12.6 is greater than 7.93, so therefore a side length of package A is less than twice a side length of package b*