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.)

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

b.)

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

26.)

a.)

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

b.)

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

28.)

a.)

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

b.)

$$(z+2)^{-3}(z+2)^{-1} \Longrightarrow \tfrac{1}{z+2^4}$$

32.)

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

33.)

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

34.)

$$-2.058 \times 10^{6} \Longrightarrow -2,058,000$$

37.)

a.)

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

38.)

a.)

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

40.)

a.)

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

b.)

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

42.)

a.)

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

b.)

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

46.)

a.)

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

b.)

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

49.)

a.)

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

b.)

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

54.)

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

56.)

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

59.)

Radical Form	Rational Exponent Form
$\frac{3}{\sqrt[3]{x^2}}$	$3x^{-2/3}$

63.)

a.)

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

b.)

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

66.)

a.)

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

b.)

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

68.)

a.)

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

b.)

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

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 if 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