

7.1 Radical Expressions:

1) Simplify

a) $\sqrt{36x^2}$

b) $\sqrt{x^{10}}$

c) $\sqrt{x^2 + 2x + 1}$

7.2 Exponents and Rational Functions

1) Write an equivalent expression using radical notation:

a) $(a^2b^2)^{\frac{1}{5}}$

2) Write an equivalent expression using exponential notation

a) $\sqrt[7]{x^3y^2z^2}$

3) Use the laws of exponents to simplify:

a) $\frac{5^{\frac{3}{4}}}{5^{\frac{1}{8}}}$

b) $5^{\frac{1}{8}} * 5^{\frac{3}{4}}$

c) $\left(5^{\frac{1}{8}}\right)^{\frac{1}{2}}$

7.3 Multiplying Radical Expressions

1) Multiply:

$$(\sqrt{y-b})(\sqrt{y+b})$$

2) Simplify by factoring:

$$\sqrt{325}$$

3) Simplify. Assume no radicands were formed by raising negative numbers to even powers.

$$\sqrt[3]{a^6b^7c^{13}}$$

4) Multiply and Simplify:

$$(\sqrt{6})(\sqrt{3})$$

7.4. Dividing Radical Expressions

1) Simplify by taking the roots of the numerator and the denominator. Assume all variables represent positive numbers

$$\sqrt[3]{\frac{27a^3}{8b^3}} =$$

2) Divide and if possible simplify. Assume all variables represent positive numbers

$$\frac{\sqrt[3]{189x^5y^7}}{\sqrt[3]{7x^2y^4}}$$

3) Rationalize each denominator. Assume all variables represent positive numbers.

a) $\sqrt{\frac{5}{7}}$

7.5 Expressions containing several radical terms

1) Simplify by combining like radical terms. Assume all variables represent positive numbers

$$8\sqrt{11} - 8\sqrt{3} + 4\sqrt{11} + 2\sqrt{3}$$

2) Multiply and if possible simplify. Assume all variables represent positive numbers

a) $\sqrt{x}(4 + \sqrt{x})$

3) Rationalize each denominator. Assume all variables represent positive numbers.

$$\frac{3}{x - \sqrt{2}}$$

7.6 Solving Radical Equations

1) Solve for x

a) $\sqrt[3]{5x+1} = 8$

b) $\sqrt[3]{5x+1} = -8$

7.8 The Complex Numbers

1) Let $a=3+2i$ and $b=3+6i$

a) $a+b=$

b) $a-b=$

c) $a*b=$

d) $a/b=$

8.1 Quadratic Equations

1) Solve for x

a) $7x^2 = 21$

b) $25x^2 + 4 = 0$

c) $x^2 - 10x = 22$

8.2 The Quadratic formula

1) Solve for x

a) $x^2 + 7x - 3 = 0$

b) Let $f(x) = 3x^2 - 5x - 1$. Find the x-intercepts of $f(x)$

8.4 More on Quadratic Formula

1) For the following equations use the discriminant to determine what type of the number the solutions are and how many solutions exist.

$$x^2 + 4 = 0$$

2) Write a quadratic equation having the given numbers as solutions. 4,6

8.6 Quadratic Functions and their graphs,

1) Graph by hand, label the vertex and draw the axis of symmetry:

a) $f(x) = x^2$

b) $f(x) = -2x^2$

c) $f(x) = (x+1)^2$

d) $f(x) = x^2 + 2$

e) $f(x) = 2(x+1)^2 + 2$

8.7 More on quadratic Graphs

Graph by hand, label the vertex and axis of symmetry.

1) $f(x) = x^2 + 6x + 13$

2) $f(x) = -x^2 + 2x + 5$