

Mth 020 Practice sheet for Exam #4 Rev. Fall 2016 JC

1. **Sec 5.6** Find all the solutions:

a. $(x-1)(x+2)=0$

b. $x(x-5)=0$

c. $x^2 + 5x - 6 = 0$

d. $x^2 + 8x - 48 = 0$

e. $t^2 - 4t = 0$

f. $x^2 = 36$

g. $n^2 + 8n + 15 = 0$

h. $4t^2 + 8t = 0$

h. $2n^2 - 6n - 20 = 0$

2. **Sec. 8.1 Simplify:** (Assume all variables represent non negative numbers.)

(a) $-\sqrt{81}$

(b) $-\sqrt{225}$

(c) $\sqrt{400}$

(d) $\sqrt{361}$

(e) $\sqrt{4x^2}$

(f) $\sqrt{25x^2y^2}$

(g) $-\sqrt{1}$

(h) $\sqrt{(x+4)^2}$

Classify each number as either rational or irrational:

(i) $\sqrt{121}$

(j) $\sqrt{17}$

(k) $-\sqrt{81}$

(l) $\sqrt{11^2}$

3. **Sec. 8.2** Multiply and Simplify:

m) $\sqrt{9} \cdot \sqrt{4}$

n) $\sqrt{20} \cdot \sqrt{5}$

o) $\sqrt{8} \cdot \sqrt{2}$

Simplify by Factoring:

aa) $\sqrt{90}$

bb) $\sqrt{54}$

cc) $\sqrt{32}$

dd) $\sqrt{144a^2}$

ee) $\sqrt{300}$

dd) $\sqrt{98}$

Multiply and then simplify by factoring, if possible:

(Assume all variables represent non negative numbers.)

(a) $\sqrt{3} \cdot \sqrt{18}$

(d) $\sqrt{25} \cdot \sqrt{2}$

(b) $\sqrt{3} \cdot \sqrt{27}$

(e) $\sqrt{5x^2} \cdot \sqrt{5}$

(c) $\sqrt{3x} \cdot \sqrt{12x}$

(f) $\sqrt{2a} \cdot \sqrt{5bc}$

4. **Sec. 8.3** Divide Radical Expressions and Simplify, if possible:

(a) $\frac{\sqrt{28}}{\sqrt{7}}$ (b) $\frac{\sqrt{75}}{\sqrt{15}}$ (c) $\frac{\sqrt{2}}{\sqrt{32}}$

(d) $\frac{\sqrt{250}}{\sqrt{40}}$ (e) $\sqrt{\frac{9}{25}}$ (f) $\frac{\sqrt{75}}{\sqrt{12}}$

(g) $\sqrt{\frac{18x}{2x}}$ (h) $-\sqrt{\frac{49}{16}}$ (i) $\frac{\sqrt{x^3}}{\sqrt{x^4}}$

Rationalizing the denominators: : **Sec 8.3**

(a) $\frac{1}{\sqrt{6}}$ (b) $\frac{6}{\sqrt{5}}$ (c) $\frac{\sqrt{5}}{\sqrt{2}}$

(d) $\frac{\sqrt{12}}{\sqrt{5}}$ (e) $\frac{\sqrt{16}}{\sqrt{27}}$ (d) $\frac{\sqrt{8}}{\sqrt{3}}$

5. **Sec 8.4** Adding and Subtracting Radical Expressions:

(a) $3\sqrt{6} + 2\sqrt{6}$ (b) $6\sqrt{7} - 3\sqrt{7}$

(c) $2\sqrt{10} + 6\sqrt{10} + 10\sqrt{10}$ (d) $5\sqrt{6} - 4\sqrt{6} + 9\sqrt{6}$

(e) $\sqrt{18} + \sqrt{50}$ (f) $7\sqrt{32} + \sqrt{8} - \sqrt{50}$

(g) $\sqrt{9x} + \sqrt{49x} - 9\sqrt{x}$ (h) $\sqrt{160} + \sqrt{360}$

(i) $9\sqrt{32} - 3\sqrt{8}$ (j) $5\sqrt{18} - 2\sqrt{32} - \sqrt{8}$

Multiplying Radical Expressions

(k) $\sqrt{3}(\sqrt{12} + \sqrt{3})$ (l) $\sqrt{2}(\sqrt{7} + \sqrt{5})$

Mth 020 Practice sheet for Exam #4 Rev. Fall 2016 JC

6. **Sec. 8.5** Solving Radical Equations:

a) $\sqrt{x} = 12$

b) $\sqrt{x} - 4 = 5$

c) $\sqrt{2x} + 2 = 11$

cc) $\sqrt{2x} + 4 = 17$

d) $5 + \sqrt{x-7} = 9$

dd) $5 + \sqrt{x-7} = 9$

e) $12 - 4\sqrt{3x} = 0$

ee) $10 - 2\sqrt{5x} = 0$

f) $\sqrt{5y+4} = \sqrt{4y+6}$

ff) $\sqrt{6y+6} = \sqrt{5y+7}$

g) $5\sqrt{y} = -7$

h) $x - 8 = \sqrt{x-6}$

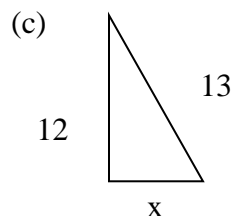
hh) $x + 3 = \sqrt{5x+21}$

7. **Sec 8.6**

In a right triangle with side a, side b, and hypotenuse c, find the length of the side not given:

(a) $a = 5, b = 12$

(b) $a = 3, b = 5$

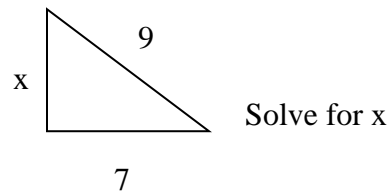


Solve for x

(d) $a = 9, c = 15$

Mth 020 Practice sheet for Exam #4 Rev. Fall 2016 JC

(e)



(f) $b = 6, c = 10$

g) A guy wire is attached to a telephone pole at a point 5m above the ground. How long is the wire if the other end is attached at a point on the ground 12m from the base of the pole?

h.) An 18 foot ladder is placed against a vertical wall of a building with the bottom of the ladder standing on level ground 5 feet from the base of the building. How high up the wall does the ladder reach? Round your answer to the nearest hundred.