Chapter 10A Concept 1 – part 1

Name_____

Hr_____

Simplify the radical completely.

1) $\sqrt{192}$

2) $\sqrt{64}$

3) $\sqrt{27}$

4) $\sqrt{16x}$

5) $\sqrt{28n}$

6) $\sqrt{12m^2}$

7) $\sqrt{28p^2}$

8) $\sqrt{256x^3y^4}$

9) $\sqrt{147x^4y^2}$

10) $\sqrt{343a^3b^3}$

11) $\sqrt{288a^4b^4}$

12) $\sqrt{196ab^3c^2}$

13) $\sqrt{252hj^2k}$

14) $\sqrt{180xyz^3}$

Chapter 10A Concept 1 – part 2

Name_____

Hr_____

Part 2: Simplify the radical completely.

15) $\sqrt{48}$

16) $2\sqrt{81}$

17) $3\sqrt{48}$

18) $6\sqrt{18}$

19) $\sqrt{12x^3}$

20) $2\sqrt{50a}$

21) $-3\sqrt{20x}$

22) $4\sqrt{72b^3}$

23) $\sqrt{75a^2b^2}$

24) $-5\sqrt{64m^2}$

25) $-3\sqrt{18hk^2}$

26) $\sqrt{25x^3y^2}$

27) $\sqrt{160pq^3}$

28) $-2\sqrt{400x^4y^3}$

Chapter 10A Concept 2

Name_____

Hr_____

Multiply or divide the radicals. Then simplify completely.

1) $\sqrt{6} \cdot \sqrt{15}$

2) $\sqrt{3} \cdot \sqrt{3}$

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

4) $\sqrt{5a} \cdot \sqrt{10a^3}$

5) $\sqrt{3k^3} \cdot \sqrt{5k}$

6) $\sqrt{8p^3} \cdot \sqrt{10p}$

7) $-4\sqrt{4} \cdot 4\sqrt{3}$

8) $2\sqrt{10} \cdot -5\sqrt{15}$

9) $2\sqrt{12} \cdot -4\sqrt{10}$

10) $2\sqrt{8x} \cdot -3\sqrt{8x^3}$

11) $2\sqrt{12r^2} \cdot -4\sqrt{6r}$

12) $2\sqrt{15n^3} \cdot -3\sqrt{15n^2}$

13) $\frac{\sqrt{4}}{\sqrt{25}}$

14) $\frac{\sqrt{16}}{\sqrt{25}}$

15) $\frac{\sqrt{15}}{\sqrt{25}}$

16) $\frac{3\sqrt{10}}{5\sqrt{32}}$

17) $\frac{3\sqrt{8}}{5\sqrt{50}}$

18) $\frac{3\sqrt{15}}{3\sqrt{48}}$

Chapter 10A Concept 3

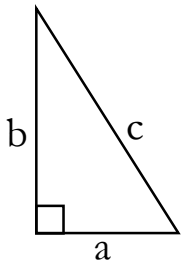
Name_____

Hr_____

Use the triangle at the right. Find the length of the missing side. Round to nearest tenth if necessary.

1) a = 6, b = 8

2) a = 15, b = 20



3) a = 8, b = 15

4) a = 10, b = 24

5) a = 1.5, b = 2

6) a = 3, c = 5

7) b = 12, c = 13

8) a = 9, c = 15

Determine whether the given lengths can be sides of a right triangle.

9) 9 ft, 12 ft, 15 ft

10) 1 in, 2 in, 3 in

11) 2 m, 4 m, 5 m

12) 16 cm, 30 cm, 34 cm

13) 4 m, 4 m, 8 m

14) 10 in, 24 in, 26 in

Chapter 10A Concept 4

Name_____

Hr_____

Simplify by rationalizing the denominator.

1) $-\frac{4}{\sqrt{5}}$

2) $\frac{3}{\sqrt{3}}$

3) $\frac{\sqrt{3}}{\sqrt{2}}$

4) $-\frac{5}{\sqrt{5}}$

5) $\frac{5}{\sqrt{2}}$

6) $-\frac{5}{\sqrt{2}}$

7) $\frac{\sqrt{5}}{\sqrt{2}}$

8) $\frac{\sqrt{2}}{\sqrt{3}}$

9) $\frac{\sqrt{4}}{\sqrt{5}}$

10) $\frac{\sqrt{3}}{\sqrt{4}}$

Chapter 10A Concept 5

Name_____

Hr_____

Add or subtract the radical expressions. Make sure you have "like radicals" first!

1) $-\sqrt{6}-3\sqrt{6}$

2) $-3\sqrt{5}-2\sqrt{5}$

3) $-3\sqrt{2}-\sqrt{2}$

4) $2\sqrt{3}-\sqrt{6}+2\sqrt{6}$

5) $-3\sqrt{2}-\sqrt{6}-3\sqrt{6}$

6) $-\sqrt{2}-3\sqrt{2}+2\sqrt{2}$

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

8) $-2\sqrt{5}-3\sqrt{5}+3\sqrt{5}+2\sqrt{2}$

9) $3\sqrt{5}-3\sqrt{5}$

10) $3\sqrt{3}+3\sqrt{3}$

11) $-6\sqrt{2}-2\sqrt{2}$

12) $3\sqrt{20}+2\sqrt{20}$

Chapter 10A Concept 6

Name_____

Hr_____

Multiply the radicals. If it is a monomial x binomial, use distribution. If it is a binomial x binomial, use a box/FOIL.

1) $\sqrt{15}(\sqrt{3}+4)$

2) $\sqrt{5}(\sqrt{2}+4)$

3) $\sqrt{5}(5+\sqrt{10})$

4) $\sqrt{15}(\sqrt{5}+\sqrt{6})$)

5) $\sqrt{10}(\sqrt{5}+\sqrt{3})$

6) $4\sqrt{5}(4-2\sqrt{5})$

7) $(2+\sqrt{3})(-1+\sqrt{3})$

8) $(\sqrt{5}-1)(\sqrt{5}+4)$

A few more on the back!

9) $(\sqrt{3}+\sqrt{5})^2$

10) $(\sqrt{2}+\sqrt{5})^2$

11) $(-4+\sqrt{3})(-5+\sqrt{3})$

12) $(2\sqrt{3}+5)(-3\sqrt{3}+1)$

Name_____

Hr_____

CHAPTER 10A PRACTICE TEST

1) List the first 15 perfect squares

Concept 1: Simplify the following radicals.

2) $\sqrt{2}$

3) $\sqrt{48}$

4) $-3\sqrt{125}$

5) $-8\sqrt{18}$

6) $4\sqrt{80x^2}$

7) $-5\sqrt{81x^3y^4}$

Concept 2: Multiply or divide the radicals. Then simplify completely.

8) $\sqrt{2}\cdot\sqrt{5}$

9) $\sqrt{6}\cdot\sqrt{12}$

10) $\sqrt{2r}\cdot\sqrt{6r}$

11) $\sqrt{2k^2}\cdot\sqrt{8k^2}$

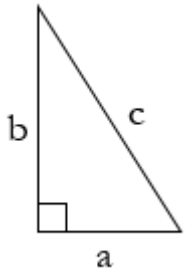
12) $\frac{\sqrt{3}}{\sqrt{12}}$

13) $\frac{\sqrt{16}}{\sqrt{25}}$

Concept 3: Use the triangle at the right. Find the length of the missing side. If necessary, round to the nearest tenth.

14) a = 8, b = 9

15) a = 11, c = 19



Determine whether the given lengths can be sides of a right triangle.

16) 2 in, 3 in, 5 in,

17) 3 ft, 4 ft, 5 ft

Concept 4: Rationalize the denominator

18) $\frac{8}{\sqrt{3}}$

19) $\frac{-12}{\sqrt{6}}$

20) $\frac{\sqrt{10}}{\sqrt{3}}$

21) $\sqrt{\frac{12}{15}}$

Concept 5: Add or subtract the following radicals.

22) $-\sqrt{6}+27\sqrt{6}$

23) $16\sqrt{3}-5\sqrt{3}$

24) $5\sqrt{10}+3\sqrt{10}$

25) $8\sqrt{5}-2\sqrt{5}$

Concept 6: Multiply the following radicals.

26) $\sqrt{3}(\sqrt{2}+5)$

27) $\sqrt{10}(\sqrt{2}+1)$

28) $(\sqrt{2}-\sqrt{5})(\sqrt{3}-\sqrt{5})$

29) $(2+\sqrt{5})(-4+\sqrt{5})$