Lesson 8.5 – Simplifying Radicals & The Distance Formula

Radical Symbol:

Expressing in simplest radical form means simplifying a radical so there are no more perfect squares left under the radical sign.

Write each in simplest radical form:

1.

There is nothing that can be multiply

so, your answer is

2.

3.

4.

5.

6.

7.

Nothing multiplied together equals

So, your answer is

8.

9.

10.

11.

12.

The Distance Formula

1) Using the diagram at the right to answer the following questions.

a) What is the length of AC?

8 units

b) What are the coordinates of A and C?

c) Use the coordinates of A and C to compute the length of AC. Show your work. (What would you subtract to find the length?

d) What the length of CB?

6

e) What are the coordinates of C and B?

f) Use the coordinates of C and B to compute the length of CB. Show your work. (What would you subtract to find the length?)

g) Draw the segment AB.

What kind of triangle is ?

Right Scalene

For this kind of triangle, what are AC and CB called?

Legs

What is AB called?  
Hypotenuse

h) What theorem can you use to find the length of the hypotenuse of a right triangle if you know the lengths of the two legs?

Pythagorean Theorem

i) Use your answer to g (above) to find the length of AB. units

The Pythagorean Theorem

One of the best-known mathematical formulas is the Pythagorean Theorem, which provides us with the relationship between the sides of a right triangle. A right triangle consists of two legs and a hypotenuse. The two legs meet at a angle, and the hypotenuse is the longest side of the right triangle. The hypotenuse is always opposite the right angle.

The Distance Formula

The distance AB between any two points in the coordinates plane with coordinates and is given by the following formula.

Distance Formula Practice:

#1-10: Find the length of each line segment (The Distance between the given points). Write answers in the simplest radical form.

1)

2.

3.

4.

5.

6.

7.

8.

9.

10.

#11-12 Find the length of each line segment AND the midpoint:

11)

Distance

Mid-point

Mid-pt:

12.

Distance:

Mid-point

Midpt:

Find the other endpoint of the line segment with the given endpoint and midpoint:

Hint - you don’t need the distance formula!

13) Endpoint:

Midpoint:

14) Endpoint:

Midpoint:

15) Endpoint

Midpoint:

16) Endpoint

Midpoint

Simplify the radicals below

17)

18)

19)

20)

21)