1.5 Notes Name _____

"Problem Solving Section – Involving Rational and Irrational Numbers"

1. If $x = 9$ and $y = 16$, is $\sqrt{x+y}$ rational or irrational? Simplify your answer.

2. After an accident, police can use the formula, $v = 2\sqrt{5L}$ to estimate the speed, v, in miles per hour, that a car was traveling by measuring the length of the skid marks, L, in feet.

   a. Estimate the speed of a car that left skid marks 73 feet long. Round to the nearest tenth if needed.

   b. If the posted speed limit is 35 mph, was the car speeding?

3. Write the following numbers as fractions in simplest form.

   a. 0.61 b. 0.75

4. A couple wants to enclose a square garden with an area of 130 ft^2. The husband says that They need about 45.6 feet of fence. The wife disagrees and says they need about 11.4 feet of fence.

   a. Who is correct?

   b. What error did the other personal make?

5. a. Is $\sqrt{x^2+y^2}$ rational or irrational when $x = 15$ and $y = 8$?

   b. If you pick a whole number value for x, can you always find a whole number value for y to make the expression a rational number? Explain.

6. Evaluate the expression if $x = 5$, $y = 3$ $\sqrt{x^3 + y^2 + 11}$.

Leave your answer in square root form.

Is the result going to be rational or irrational?

7. Find the integer value of x, $1 \leq x \leq 5$, that makes $\sqrt{x^3 + 54}$ rational.

8. Write each decimal as a fraction in lowest terms:

a. $0.\overline{4}$ (one digit repeating)

b. $0.\overline{45}$ (two digits repeating)

One more for extra practice…..

c. $0.\overline{72}$ (two digits repeating)

1.5 HOMEWORK

Name _____

"Problem Solving Section – Involving Rational and Irrational Numbers"

1. If $x = 36$ and $y = 25$, is $\sqrt{x+y}$ rational or irrational? Simplify your answer.

2. After an accident, police can use the formula, $v = 2\sqrt{5L}$ to estimate the speed, v, in miles per hour, that a car was traveling by measuring the length of the skid marks, L, in feet.

   a. Estimate the speed of a car that left skid marks 65 feet long. Round to the nearest tenth if needed.

   b. If the posted speed limit is 40 mph, was the car speeding?

3. Write the following numbers as fractions in simplest form.

   a. 0.87 b. 0.34

4. A couple wants to enclose a square garden with an area of 141 ft^2. The husband says that they need about 11.9 feet of fence. The wife disagrees and says they need about 47.6 feet of fence.

   a. Who is correct?

   b. What error did the other personal make?

5. a. Is $\sqrt{x^2+y^2}$ rational or irrational when $x = 3$ and $y = 5$?

   b. If you pick a whole number value for x, can you always find a whole number value for y to make the expression a rational number? Explain.

6. Evaluate the expression if $x = 3$, $y = 2$
$\sqrt{x^3 + y^2 + 5}$.

Leave your answer in square root form.

Is the result going to be rational or irrational?

7. Find the TWO integers whose value of x, $1 \leq x \leq 5$, that make $\sqrt{x^3 + 17}$ rational.

8. Write each decimal as a fraction in lowest terms:

a. $0.\overline{7}$ (one digit repeating)

b. $0.\overline{54}$ (two digits repeating)

One more…..

c. $0.\overline{63}$ (two digits repeating)