Name: _____ Date: _____ Period: _____

Review Unit 5: Radical Operations, Exponential Equations, and Sequences

Evaluate the following radicals

1. $\sqrt{81}$

2. $\sqrt{36x^2}$

3. $\sqrt{20x^3yz^4}$

4. $2\sqrt{80p^4}$

Simplify the following radical expressions using addition or subtraction. You may have to simplify a radical before you can combine.

5. $-11\sqrt{21} + 12\sqrt{21}$

6. $-5\sqrt{11} - 10\sqrt{11}$

7. $2\sqrt{6} + 3\sqrt{54}$

8. $-3\sqrt{18} + 3\sqrt{8} - \sqrt{24}$

Simplify the following radical expression using multiplication. Your final answer must be completely simplified.

9. $3\sqrt{12} * \sqrt{6}$

10. $-4\sqrt{15} * -\sqrt{3}$

Simplify the following radical expression using multiplication. Your final answer must be completely simplified.

11. $\sqrt{20x^2} * \sqrt{20x}$

12. $\sqrt{3v}(\sqrt{6} + 2)$

13. $(\sqrt{x} + 4)(\sqrt{x} - 4)$

Evaluate each function for $x = -1, 1, 2$.

14. $f(x) = 4 \bullet 7^x$

15. $y = \frac{2}{3} \bullet 6^x$

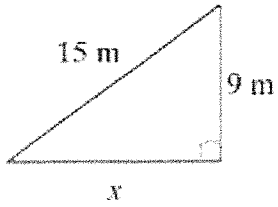
Without graphing, tell whether the function represents *exponential growth* or *exponential decay*. Then identify the first term and the amount your function is increasing by.

16. $y = 6.6 \bullet 2^x$

17. $g(x) = 7.6\left(\frac{1}{8}\right)^x$

Find the missing side of each triangle. Round your answers to the nearest tenth if necessary.

1)



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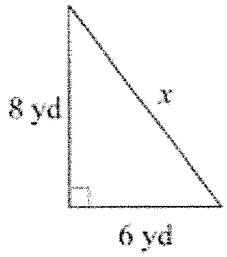

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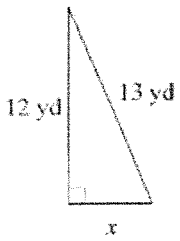
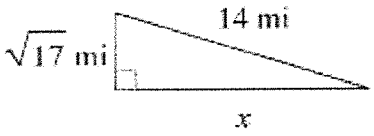
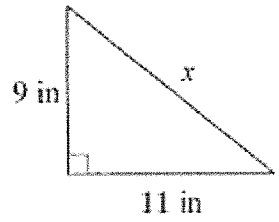


Find the missing side of each triangle. Leave your answers in simplest radical form.

4)



5)



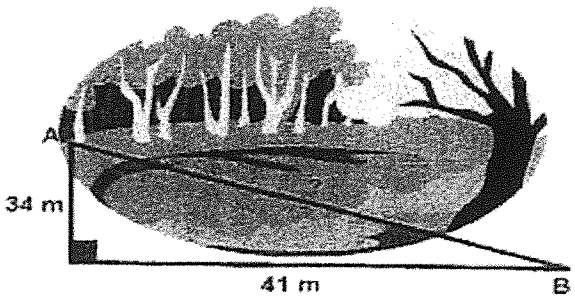
Find the missing side of each right triangle. Side c is the hypotenuse. Sides a and b are the legs. Round your answers to the nearest tenth if necessary.

8) $b = 8$ mi, $c = 10$ mi

9) $b = 12$ ft, $c = 15$ ft

10) $b = 4$ yd, $c = 5$ yd

1.

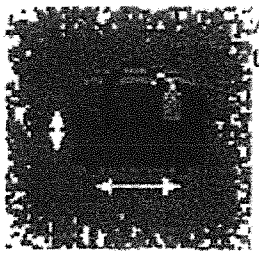


To get from point A to point B you must avoid walking through a pond. To avoid the pond, you must walk 34 meters south and 41 meters east. To the *nearest meter*, how many meters would be saved if it were possible to walk through the pond?

2.

A baseball diamond is a square with sides of 90 feet. What is the shortest distance, to the *nearest tenth* of a foot, between first base and third base?

3.



A suitcase measures 24 inches long and 18 inches high. What is the diagonal length of the suitcase to the *nearest tenth* of a foot?