1. A 20-foot ladder is placed against a vertical wall of a building, with the bottom of the ladder standing on level ground 12 feet from the base of the building. How high up the wall does the ladder reach?

   The ladder reaches ☐ feet up the wall.
   (Simplify your answer. Type an integer or a fraction.)

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2. Find the slope of the line containing the following two points: $\left(\dfrac{3}{10}, -5\right)$ and $\left(-\dfrac{1}{5}, -\dfrac{1}{5}\right)$.

   Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

   ○ A. The slope is ☐. (Type an integer or a simplified fraction.)
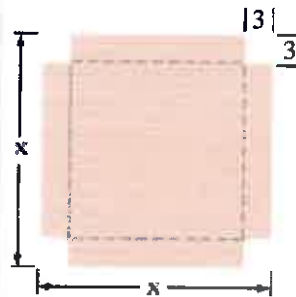
   ○ B. The slope is undefined.

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3. Multiply.

   $(8 + \sqrt{2})^2$

   $(8 + \sqrt{2})^2 = \square$
   (Simplify your answer. Type an exact answer, using radicals as needed.)

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4. An open box is to be constructed from a square piece of sheet metal by removing a square of side 3 feet from each corner and turning up the edges. (See the figure on the right.) If the box is to hold 363 cubic feet, what should be the dimensions of the sheet metal?

   What is the length of a side of the square piece of sheet metal?

   ☐ feet

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5. Simplify.

   $\left(\dfrac{3}{4}\right)^{-3}$

   $\left(\dfrac{3}{4}\right)^{-3} = \square$
   (Simplify your answer. Type a fraction or mixed number.)

Student: _____
Date: _____
Time: _____

Instructor: Josh Ducey
Program: Math 199E (Version for Math 205), Fall 2014
Test Bank: MyMathTest: Basic Algebra, Precalculus and Calculus

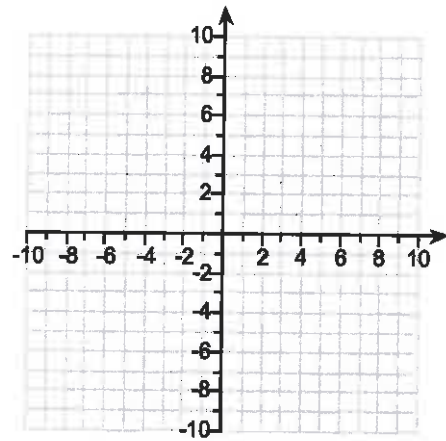**Assignment:** Qualifier 1: Calculations and Applications

6. Rewrite the given equation in slope-intercept form and then graph the line.

$$9x + 2y - 18 = 0$$

What is the equation in slope-intercept form?

☐

(Use integers or simplified fractions for any numbers in the equation.)

Use the slope and the y-intercept to graph the line.

Click to enlarge

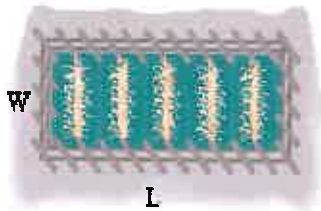7. Evaluate the expression.

$$-4^{-1} + 5^{-2}$$

$$-4^{-1} + 5^{-2} = \boxed{}$$

(Simplify your answer. Type a fraction.)

8. David has available 2400 yards of fencing and wishes to enclose a rectangular area.
    (a) Express the area A of the rectangle as a function of the width W of the rectangle.
    (b) For what value of W is the area largest?
    (c) What is the maximum area?

    (a) Express the area as a function of the width.

    $A(W) = \boxed{}$

    (b) For what value of W is the area largest?

    $W = \boxed{}$ yards (Simplify your answer.)

    (c) What is the maximum area?

    $A = \boxed{}$ square yards (Simplify your answer.)

---

9. Use the given conditions to write an equation for the line in point-slope form and slope-intercept form.

    Slope $= -5$, passing through $(-7, -3)$

    Type the point-slope form of the line.

    $\boxed{}$

    (Simplify your answer. Use integers or fractions for any numbers in the equation.)

    Type the slope-intercept form of the line.

    $\boxed{}$

    (Simplify your answer. Use integers or fractions for any numbers in the equation.)

10. Simplify.

$$\sqrt[3]{-27}$$

Select the correct choice below and, if necessary, fill in the answer box within your choice.

◯ A. $\sqrt[3]{-27} = \boxed{}$

◯ B. The root is not a real number.