Basic Algebra—Exam 2 (Dougherty)
July 1, 2013

• Simple scientific calculators are allowed for this exam. No other computational device is allowed, nor are any notes, etc.

• Follow directions for each problem carefully.

• Partial credit is possible if meaningful work is shown to support your answers.

• Answers with no work may have points deducted.

1. Solve for the variable. Simplify any answers which are fractions (but do not write such answers using decimals).

\[5x + 19 = 64\]
\[14 - 3x = 2 + 5x\]

\[-2(4x - 6) = 3(8 - 5x)\]
\[\frac{3}{5}x + \frac{3}{4} = \frac{1}{20} - x\]

2. Solve for the given variable.

\[V = lwh\quad \text{for } h\]
\[m = x - zq\quad \text{for } q\]
\[A = Bx + Cx\quad \text{for } x.\]
3. Showing some work for each, answer each of the following:

(a) What number is 35\% of 500?

(b) What percent of 45 is 18?

(c) 63 is 30\% of what number?

(d) If an item normally lists for $150, and there is a “32\% off” sale, what is the new price?

(e) If I spent $78.44 for an item, including a 6\% tax, how much was the original price of the item?
4. Solve each inequality, and graph its solution on a number line.

\[ 5t - 3 < 47 \]
\[ 1 - 4t \geq -27 \]
\[ -\frac{4}{3}x - 5 > 27 \]
\[ 4(x - 5) \leq 23 - 3x \]
\[ \frac{x}{5} - \frac{4}{15} < \frac{2}{3} \]

5. Write coordinates \((x, y)\), where \(x\) and \(y\) are numbers, for each point given in the graph.

\( A = \left( \phantom{0}, \phantom{0} \right) \)
\( B = \left( \phantom{0}, \phantom{0} \right) \)
\( C = \left( \phantom{0}, \phantom{0} \right) \)
\( D = \left( \phantom{0}, \phantom{0} \right) \)
6. For each of the following points, identify the quadrant (I, II, III or IV):

\((-6, 40)\) \hspace{1cm} (9, 10) \hspace{1cm} (2, -3) \hspace{1cm} (-5, -4)

7. If two less than three times a number is 43, what is that number?

8. If a rectangular garden is five times as long as it is wide, and the perimeter is 120 ft, what are its dimensions? (Show work.)