Mth 096 – Beginning Algebra – Practice Exam 1 Solutions

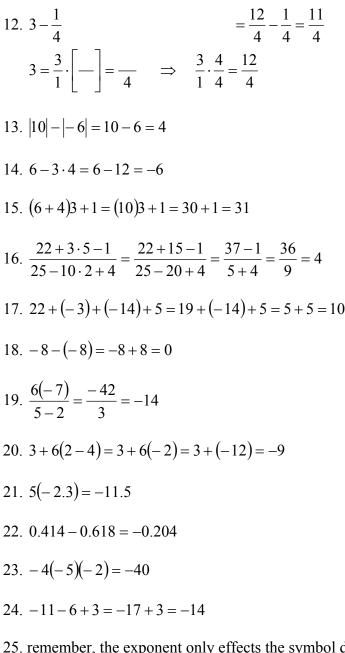
- 1. A prime number does not have factors besides 1 and itself. Some examples are 2, 3, 5, 7, 11, 13, and 17.
- 2. The factors of 30 are 1, 2, 3, 5, 6, 10, 15, and 30. Any 3 will do.
- 3. $60 = 6 \cdot 10 = 2 \cdot 3 \cdot 2 \cdot 5 = 2 \cdot 2 \cdot 3 \cdot 5$
- 4. Rational numbers are fractions, so any number that is a fraction with a denominator other than 1 will do. Some examples: $\frac{2}{3}$, $\frac{10}{7}$, etc.

5.

- a. $\frac{2}{3}$ is a rational number, since it is a fraction, and it is also a real number
- b. π is irrational and real (remember, any number on the number line is real)
- c. 8 is a member of most of the sets: N, W, Z, Q, and R
- 6.

6.
a.
$$-3 \ge -5$$

b. $-|-3| \le -(-3)$
c. $-2 \le -1$
7. $\frac{3}{4} \cdot -= \frac{2}{20} \implies \frac{3}{4} \cdot \frac{5}{5} = \frac{15}{20}$
8.
a. $x - 3$
b. $x + 6$
c. $2x + 5$
9. $\frac{5}{3} \cdot \frac{9}{10} = \frac{5}{3} \cdot \frac{3 \cdot 3}{5 \cdot 2} = \frac{5}{3} \cdot \frac{3 \cdot 3}{5 \cdot 2} = \frac{3}{2}$
10. $5 \div \frac{2}{7} = \frac{5}{1} \cdot \frac{7}{2} = \frac{35}{2}$
11. $\frac{3}{5} + \frac{2}{3} = \frac{9}{15} + \frac{10}{15} = \frac{19}{15}$
 $\frac{3}{5} \cdot [--] = \frac{15}{15} \implies \frac{3}{5} \cdot \frac{3}{5} = \frac{9}{15}$
 $\frac{2}{3} \cdot [--] = \frac{15}{15} \implies \frac{2}{3} \cdot \frac{5}{5} = \frac{10}{15}$



25. remember, the exponent only effects the symbol directly to its left, so only the 5 is squared: $-5^2 = -5 \cdot 5 = -25$

26.

a.
$$5(7+8y) = 5 \cdot 7 + 5 \cdot 8y = 35 + 40y$$

b. $-(3-2x) = -1(3-2x) = -3 + 2x$

27.

a. 25x + 25y = 25(x + y)

b.
$$5x + 20 = 5x + 5 \cdot 4 = 5(x + 4)$$

28.

- a. With no study time, h = 0, so the score would be 50.
- b. When h = 2, the score would be 70.
- c. No it increases faster from 0 to 2 hours than from 6 to 8 hours.
- d. No based on part c, it does not always increase by the same amount for an additional 2 hours.