

MAT 0012 Basic Algebra I

KEY CONCEPT REVIEW

CHAPTER 3, SECTIONS 3.3 – 3.4

TO RECEIVE CREDIT, DO ALL PROBLEMS, MAKE CORRECTIONS, AND SHOW ALL WORK.

List all of the operations that were used to solve the given equation for x.

- 1) Solve: $11 - 3(x + 6) = 15 - 7(x + 2)$

$$11 - 3(x + 6) = 15 - 7(x + 2)$$

$$11 - 3x - 18 = 15 - 7x - 14$$

$$-3x - 7 = -7x + 1$$

$$4x - 7 = 1$$

$$4x = 8$$

$$x = 2$$

Operations

1. _____
2. _____
3. _____
4. _____
5. _____

- 2) The first operation for solving the equation $5(2y + 3) - 9y = -9 - 5y$ is shown. What is the next operation?

$$5(2y + 3) - 9y = -9 - 5y \quad \leftarrow \text{distribute 5}$$

$$10y + 15 - 9y = -9 - 5y$$

- A) Add 9y to both sides.
- B) Subtract 15 from both sides.
- C) Add 5y to both sides.
- D) Combine 10y and -9y.

Solve.

3) $6x - 8 = 9x + 7$

- A) 1
- B) -5
- C) 5
- D) -1

4) $-30 - 10x = -5x$

5) $3x + 24 + 4x = -12 - x - 28$

- A) -2
- B) 2
- C) -8
- D) 8

Solve.

6) $4(y + 5) = 6(y + 3)$

7) $-8(x + 4) + 5 = -6 - 11x$

- A) 7
- B) -5
- C) 5
- D) -7

Write each sentence as an equation.

8) The difference of -29 and 11 gives -40.

9) The sum of -32 and 15 is -17.

10) The product of -6 and -22 is 132.

11) Fifteen subtracted from -6 equals -21.

- A) $6 - 15 = 21$
- B) $15 - 6 = 21$
- C) $-6 - 15 = -21$
- D) $15 - 6 = -21$

Write each sentence as an equation. Use x to represent the unknown number.

- 12) The sum of four times a number and three is the same as seven times the number.
- 13) Three times the difference of fifteen and a number is negative twenty-seven.
- 14) Twelve less than six times a number is eighteen.
- 15) Twice the sum of a number and seven is equal to four more than the number.
- A) $2x + 7 = 4x$
 B) $2(x + 7) = 4x$
 C) $2x + 7 = x + 4$
 D) $2(x + 7) = x + 4$
- 16) Which statement below represents a verbal translation of $5(2x - 4) = 9x$?
- A) Four less than the product of five and twice a number is nine times the number.
- B) Five times the difference of twice a number and four is nine times the number.
- C) Five more than the difference of twice a number and four is nine more than the number.
- D) The product of five and twice a number less four is nine times the number.

Write an equation and solve.

- 17) Six added to three times a number is eighteen. Find the number.
- 18) Four less than twice a number equals sixteen. Find the number.
- A) 10 B) -6
 C) 6 D) -10

Greg bought a laptop and accessories for \$630. He paid six times as for the lap top as he did for the accessories. How much did he pay for the laptop?

- 19) Write algebraic expressions to represent the lap top and the accessories.
- 20) Write an algebraic equation.
- 21) Find the cost of the laptop.

Solve each problem.

- 22) Jan spent \$85 at a music store. She spent 4 times as much on CD's than she spent on a music video. How much did she spend on CD's?
- A) \$21.15 B) \$17.00
 C) \$68.00 D) \$63.75
- 23) A high school gradating class has 435 students. The class has 101 more girls than boys. How many girls are in the class?
- A) 268 girls B) 233 girls
 C) 334 girls D) 167 girls
- 24) Barbie baked pastries, brownies, and cookies for a school bake sale. She made twice as many brownies as pastries and three times as many cookies as pastries. If she baked a total of 96 items, how many cookies did she make?