



## GMAT Practice Worksheet: Algebra

**Objective:** The purpose of this worksheet is to give you practice solving GMAT questions involving algebra. Use non-standard math techniques whenever possible, but most of these problems require more traditional algebra. Make sure you've watched the following videos before tackling this worksheet:

1. "Quadratic Equations, Simultaneous Equations, and Inequalities"
2. "Exponents, Roots and Radicals, and Simplifying Algebraic Expressions"

**Directions:** Take as much time as you need to solve each problem. Use your textbook and video lessons for reference if necessary. Do not be concerned with time; learning the techniques and relevant math is what is important.

1. If  $a$ ,  $b$ , and  $c$  are numbers such that  $\frac{a}{b} = 3$  and  $\frac{b}{c} = 7$ , then  $\frac{a+b}{b+c}$  is equal to which of the following?

- (A)  $\frac{7}{2}$
- (B)  $\frac{7}{8}$
- (C)  $\frac{3}{7}$
- (D)  $\frac{1}{7}$
- (E) 21

2. The stopping distance of a car is the number of feet that the car travels after the driver starts applying the brakes. The stopping distance of a certain car is directly proportional to the square of the speed of the car, in miles per hour, at the time the brakes are first applied. If the car's stopping distance for an initial speed of 20 miles per hour is 17 feet, what is its stopping distance for an initial speed of 40 miles per hour?

- (A) 34 feet
- (B) 51 feet
- (C) 60 feet
- (D) 68 feet
- (E) 85 feet

3. If  $3 < x < 7$  and  $4 < y < 7$ , which of the following best describes the range of values of  $x - y$ ?

- (A)  $-4 < x - y < 3$
- (B)  $0 < x - y < 4$
- (C)  $3 < x - y < 4$
- (D)  $3 < x - y < 7$
- (E)  $4 < x - y < 7$

4. If a number is chosen at random from the set  $\{-10, -5, 0, 5, 10\}$ , what is the probability that it is a member of the solution set of both  $3x - 2 < 10$  and  $x + 2 > -8$ ?

- (A) 0
- (B)  $\frac{1}{5}$
- (C)  $\frac{2}{5}$
- (D)  $\frac{3}{5}$
- (E)  $\frac{4}{5}$

5. In a class of 80 seniors, there are 3 boys for every 5 girls. In the junior class, there are 3 boys for every 2 girls. If the two classes combined have an equal number of boys and girls, how many students are in the junior class?

- (A) 72
- (B) 80
- (C) 84
- (D) 100
- (E) 120

6.  $|n + 1| < 4$   
How many integers  $n$  satisfy the inequality above?

- (A) One
- (B) Two
- (C) Four
- (D) Seven
- (E) Eight

7. If  $x + 2x$  is 5 more than  $y + 2y$ , then  $x - y =$

- (A)  $-5$
- (B)  $-\frac{1}{5}$
- (C)  $\frac{1}{5}$
- (D)  $\frac{3}{5}$
- (E)  $5$

8.  $3, 6, 11, 18, \dots$

The first four terms of a sequence are shown above. Which of the following could be the formula that gives the  $n$ th term of this sequence for all positive integers  $n$ ?

- (A)  $2n$
- (B)  $2n + 1$
- (C)  $3n$
- (D)  $n^2 + 1$
- (E)  $n^2 + 2$

9. If  $x + y = 3$  and  $x - y = 5$ , then  $x^2 - y^2 =$

- (A) 4
- (B) 8
- (C) 15
- (D) 16
- (E) 64

10. If  $x^{\frac{1}{3}} = y^2$ , which of the following must be equivalent to  $x$ ?

- (A)  $y^{\frac{1}{6}}$
- (B)  $y^{\frac{2}{3}}$
- (C)  $y^{\frac{3}{2}}$
- (D)  $y^3$
- (E)  $y^6$

11. A woman drove to work at an average speed of 40 miles per hour and returned along the same route at 30 miles per hour. If her total traveling time was 1 hour, what was the total number of miles in the round trip?

- (A) 30
- (B)  $30\frac{1}{7}$
- (C)  $34\frac{2}{7}$
- (D) 35
- (E) 40

12. If  $x^{-2} = 16$ , what is the value of  $x^2$ ?

- (A)  $\frac{1}{16}$
- (B)  $\frac{1}{4}$
- (C) 2
- (D) 4
- (E) 12

13. If  $\frac{2}{3} + \frac{3}{4} = \frac{x}{18}$ , then  $x$  is

- (A) 24
- (B) 25.5
- (C) 26
- (D) 27.75
- (E) 28

14. In  $X$  years, Sally will be  $Y$  years old. How old will Sally be in  $Z$  years?

- (A)  $Y - X + Z$
- (B)  $X - Y - Z$
- (C)  $X - Y + Z$
- (D)  $X + Y + Z$
- (E)  $X + Z$

15. If  $2x - y = 8$  and  $y - x = 6$ , what is  $x + y$ ?

- (A) 14
- (B) 20
- (C) 34
- (D) 40
- (E) 56

## **GMAT Algebra Worksheet:** **ANSWER KEY**

**Note:** Video answer explanations for each question on this worksheet can be found under the “Worksheets” heading on your back-end member page. If you still have questions about certain problems after watching the solution videos, contact your instructor or send an e-mail to [info@dominatethegmat.com](mailto:info@dominatethegmat.com).

1. A
2. D
3. A
4. C
5. D
6. D
7. D
8. E
9. C
10. E
11. C
12. A
13. B
14. A
15. C