

## Examrace

# Advanced Algebra: Practice Questions Competitive Exams

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1. Two cyclists start biking from a trail's start 3 hours apart. The second cyclist travels at 10 miles per hour and starts 3 hours after the first cyclist who is traveling at 6 miles per hour. How much time will pass before the second cyclist catches up with the first from the time the second cyclist started biking?
  - a. 2 hours
  - b.  $4\frac{1}{2}$  hours
  - c.  $5\frac{3}{4}$  hours
  - d. 6 hours
  - e.  $7\frac{1}{2}$  hours

Answer: b

2. If the average of three numbers is  $V$ . If one of the numbers is  $Z$  and another is  $Y$ , what is the remaining number?
  - a.  $ZY-V$
  - b.  $Z/V - 3 - Y$
  - c.  $Z/3 - V-Y$
  - d.  $3V-Z-Y$
  - e.  $V-Z-Y$

Answer: d

3. Jim can fill a pool carrying buckets of water in 30 minutes. Sue can do the same job in 45 minutes. Tony can do the same job in  $1\frac{1}{2}$  hours. How quickly can all three fill the pool together?
  - a. 12 minutes
  - b. 15 minutes
  - c. 21 minutes
  - d. 23 minutes
  - e. 28 minutes

Answer: b

4. Mary is reviewing her algebra quiz. She has determined that one of her solutions is incorrect. Which one is it?

a.  $2x + 5(x - 1) = 9x = 2$

b.  $p - 3(p - 5) = 10p = 2.5$

c.  $4y + 3y = 28y = 4$

d.  $5w + 6w = 3w = 64w = 8$

e.  $t - 2t - 3t = 32t = 8$

Answer: e

5. What simple interest rate will Susan need to secure to make \$2,500 in interest on a \$10,000 principal over 5 years?

a. 4%

b. 5%

c. 6%

d. 7%

e. 8%

Answer: b

6. Which of the following is not a rational number?

a. -4

b.  $\frac{1}{5}$

c. 0.8333333

d. 0.45

e. Square root of 2

Answer: e

7. A study reported that in a random sampling of 100 women over the age of 35 showed that 8 of the women were married 2 or more times. In a group of 5,000 women based on the study results, how many would likely be married 2 or more times?

a. 55

b. 150

- c. 200
- d. 400
- e. 600

Answer: d

8. Johnny is traveling to a meeting that is 28 miles away. He needs to be there in 30 minutes. How fast does he need to go to make it to the meeting on time?

- a. 25 mph
- b. 37 mph
- c. 41 mph
- d. 49 mph
- e. 56 mph

Answer: e

9. If Steve can mix 20 drinks in 5 minutes, Sue can mix 20 drinks in 10 minutes, and Jack can mix 20 drinks in 15 minutes, how much time will it take all 3 of them working together to mix the 20 drinks?

- a. 2 minutes and 44 seconds
- b. 2 minutes and 58 seconds
- c. 3 minutes and 10 seconds
- d. 3 minutes and 26 seconds
- e. 4 minutes and 15 seconds

Answer: a

10. If Sina can do a job in 4 days that Lisa can do in 6 days and Timy can do in 2 days, how long would the job take if Sina, Lisa, and Timy worked together to complete it?

- a. 0.8 days
- b. 1.09 days
- c. 1.23 days
- d. 1.65 days
- e. 1.97 days

Answer: b

11. If two planes leave the same airport at 1: 00 PM, how many miles apart will they be at 3: 00 PM if one travels directly north at 150 mph and the other travels directly west at 200 mph?
- a. 50 miles
  - b. 100 miles
  - c. 500 miles
  - d. 700 miles
  - e. 1, 000 miles

Answer: c

12. During a 5-day festival, the number of visitors tripled each day. If the festival opened on a Thursday with 345 visitors, what was the attendance on that Sunday?
- a. 345
  - b. 1, 035
  - c. 1, 725
  - d. 3, 105
  - e. 9, 315

Answer: e

13. Jack has 5 pieces of string. He needs to choose the piece that will be able to go around his 36-inch waist. His belt broke, and his pants are falling down. The piece needs to be at least 4 inches longer than his waist so he can tie a knot in it, but it cannot be more that 6 inches longer so that the ends will not show from under his shirt. Which of the following pieces of string will work the best?
- a. 3
  - b. 3
  - c. 3
  - d.  $3 \frac{1}{4}$  feet
  - e.  $2 \frac{1}{2}$  feet

Answer: c

14. The last week of a month a car dealership sold 12 cars. A new sales promotion came out the first week of the next month and the sold 19 cars that week. What was the percent increase in sales from the last week of the previous month compared to the first week of the next month?

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- a. 58%
- b. 119%
- c. 158%
- d. 175%
- e. 200%

**Answer: a**

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