ACT Math Practice Test 2

Direction: For each problem, choose the correct answer. You are allowed to use a calculator on this test for any problems you choose. Unless the problem states otherwise, you should assume that figures are not drawn to scale. For this test, all geometric figures lie in a plane, the word line refers to a straight line, and the word average refers to the arithmetic mean.

Q1. How is five hundred twelve and sixteen-thousandths written in decimal form?
   • A). 512.016
   • B). 512.16
   • C). 512,160
   • D). 51.216
   • E). 512.0016

Answers: ______

Q2. Simplify |3 − 11| + 4 × 2³
   • A). 421
   • B). 520
   • C). -10
   • D). 40
   • E). 28

Answers: ______

Q3. The ratio of boys to girls in a math class is 4 to 5. If there are 18 students in the class, how many are boys?
   • A). 2
   • B). 4
   • C). 8
   • D). 12
   • E). 13

Answers: ______

Q4. What is the median of 0.024, 0.008, 0.1, 0.024, 0.095, and 0.3?
   • A). 0.0595
   • B). 0.0969
   • C). 0.055
   • D). 0.0566
   • E). 0.95

Answers: ______

Q5. Which of the following is NOT the graph of a function?
Q6. What is the value of $x^5$ for $x = -3$?
   - A). $-243$
   - B). 243
   - C). $-43$
   - D). 43
   - E). 13

Q7. What is the next number in the following pattern? 0, 3, 8, 15, 24, ...
   - A). 34
   - B). 35
   - C). 36
   - D). 37
   - E). 33

Q8. What is the prime factorization of 84?
   - A). $42 \times 2$
   - B). $7 \times 2 \times 3$
   - C). $2^2 \times 3 \times 7$

For more Question Answers Visit: www.gotestprep.com
Q9. Find the slope of the line $7x = 3y - 9$.

- A). 3
- B). −9
- C). 3/7
- D). −3
- E). 7/3

Answers: ______

Q10. The perimeter of a rectangle is 20 cm. If the width is 4 cm, find the length of the rectangle.

- A). 5 cm
- B). 6 cm
- C). 15 cm
- D). 25 cm
- E). 32 cm

Answers: ______

Q11. Find the area of the following figure

- A). 58 sq. in.
- B). 18 sq. in.
- C). 51 sq. in.
- D). 39 sq. in.
- E). 98 sq. in.

Answers: ______

Q12. Five cans of tomatoes cost $6.50. At this rate, how much will nine cans of tomatoes cost?

- A). $13.00
- B). $11.70
- C). $3.30
- D). $4.70
- E). $13.70

Answers: ______
13. For all $x \neq 0$, $\frac{2}{3x} + \frac{1}{5} =$
   a. $\frac{2}{15x}$
   b. $\frac{10 + 3x}{15 + x}$
   c. $\frac{3}{3x + 15}$
   d. $\frac{10 + 3x}{15x}$
   e. $\frac{1}{5x}$

   Answers: ______

Q14. Which inequality best represents the following graph?

   • A). $-1.5 > x > -1$
   • B). $x \leq 0$
   • C). $-0.5 > x > 0$
   • D). $-1.5 < x \leq 0$
   • E). $-1.5 \leq x \leq 0$

   Answers: ______

Q15. Simplify $-(6x^4y^5)^2$
   • A). $-3^6x^8y^{10}$
   • B). $-36x^8y^6$
   • C). $3^6x^8y^6$
   • D). $-36xy$
   • E). $-36x^6y^6$

   Answers: ______

Q16. If $2x + 3y = 55$ and $4x = y + 47$, find $x - y$
   • A). 6
   • B). 12
   • C). 24
   • D). 28
   • E). 32

   Answers: ______
Q17. Simplify $3\sqrt{16x^5y^4}316x^5y^4$
   - A). $2xy \sqrt{2x^2}2xy32$  
   - B). $8xy \sqrt{2}8xy32$
   - C). $2xy \sqrt{xy}2xy3xy$
   - D). $2x^3y$
   - E). $4x^3y^2$

Answers: _____

Q18. The formula to convert Celsius to Fahrenheit is where $F= \frac{9}{5}C + 32$ $F=59$

$C+32$ is degrees Fahrenheit, and $C$ is degrees Celsius. What Fahrenheit temperature is equivalent to $63^\circ C$?
   - A). $35^\circ$
   - B). $49^\circ$
   - C). $67^\circ$
   - D). $89^\circ$
   - E). $97^\circ$

Answers: _____

Q19. What are the solutions to the equation $x^2 + 8x + 15 = 0$?
   - A). $\{8, 15\}$
   - B). $\{0\}$
   - C). $\{-5, -3\}$
   - D). $\{-8, -13\}$
   - E). $\{2, 4\}$

Answers: _____

Q20. If $5k = 9m - 18$, then $m =$
   - A). $5k + 18$
   - B). $(5k+18) / 9$
   - C). $-9 + 5k$
   - D). $(5k + 9) / 9$
   - E). $9k + 18$

Answers: _____

Q21. What are the solutions of the equation $5x - 7 = 5(x + 2)$?
   - A). $\{2\}$
   - B). $\{7\}$
   - C). all positive numbers
   - D). all real numbers

Answers: _____
Q22. \( \frac{4x^2 + 11x - 3}{x+3} \) for all \( x \neq -3 \)

- A). \( 3x^2 + 11 \)
- B). \( 2x + 1 \)
- C). \( 4x^2 + 1 \)
- D). \( 10x - 6 \)
- E). \( 4x - 1 \)

Answers: ______

Q23. If \( x = \begin{pmatrix} 3 & 4 \\ 5 & 6 \end{pmatrix} \) and \( y = \begin{pmatrix} -2 & 4 \\ -1 & 0 \end{pmatrix} \), find

a. \( \begin{pmatrix} 5 & 0 \\ 6 & 6 \end{pmatrix} \)

b. \( \begin{pmatrix} -5 & 0 \\ -6 & -6 \end{pmatrix} \)

c. \( \begin{pmatrix} 1 & 8 \\ 4 & 6 \end{pmatrix} \)

d. \( \begin{pmatrix} 4 & 1 \\ 2 & 8 \end{pmatrix} \)

e. \( \begin{pmatrix} 6 & 1 \\ 2 & 5 \end{pmatrix} \)

Answers: ______

Q24. If \( \log_3 x = 2 \), then \( x = \)

- A). 6
- B). 9
- C). \( \frac{1}{4} \)
- D). \( \frac{1}{2} \)
- E). \( \frac{3}{4} \)

Answers: ______

Q25. The vertices of a triangle are \( A(-1,3) \), \( B(3,0) \), and \( C(-2,-1) \). Find the length of side \( AC \).

- A). \( \sqrt{15} \)
- B). \( \sqrt{17} \)
Q26. Which of the following equations has a graph that has a y-intercept of 4 and is parallel to $3y - 9x = 24$?
   - A). $-12x + 4y = 16$
   - B). $9x - 3y = -15$
   - C). $2y = 4x + 8$
   - D). $7y = 14x + 7$
   - E). $3x - 9y = 14$

Answers: ______

Q27. The best approximation of $\sqrt{37} \times \sqrt{125}$ is
   - A). 52
   - B). 1058
   - C). 2566
   - D). 138
   - E). 66

Answers: ______

Q28. If a coin is flipped and a number cube is rolled, what is the probability of getting tails and 3?
   - A). $\frac{1}{4}$
   - B). $\frac{1}{2}$
   - C). $\frac{3}{4}$
   - D). $\frac{1}{12}$
   - E). $\frac{2}{10}$

Answers: ______

Q29. What is $\frac{1}{2}$% of 90?
   - A). 0.04
   - B). 0.145
   - C). 45
   - D). 0.45
   - E). 145

Answers: ______

Q30. Mike has 12 bags of shredded cheese for making pizzas. If he uses $\frac{3}{4}$ of a bag of cheese for each pizza, how many pizzas can he make?
Q31. Greene ran the 100-meter dash in 9.79 seconds. What was his speed in km/h (rounded to the nearest km)?

- A). 3 km/h
- B). 7 km/h
- C). 17 km/h
- D). 37 km/h
- E). 47 km/h

Answers: ______

Q32. Larry has 4 pairs of pants, 6 pairs of socks, and 10 shirts in his dresser. How many days could Larry go without wearing the same combination of 1 pair of pants, 1 pair of socks, and 1 shirt?

- A). 5
- B). 52
- C). 152
- D). 382
- E). 452

Answers: ______

Q33. What is the product of $5 \times 10^{-4}$ and $6 \times 10^5$?

- A). $3 \times 10^5$
- B). $7 \times 10^4$
- C). $1.1 \times 10^{-5}$
- D). $3.6 \times 10^4$
- E). $5.6 \times 10^4$

Answers: ______
Q34. What is the sine of angle B in the triangle?

\[ \text{A). } \frac{7}{25} \]
\[ \text{B). } \frac{5}{27} \]
\[ \text{C). } \frac{9}{28} \]
\[ \text{D). } \frac{3}{37} \]
\[ \text{E). } \frac{4}{39} \]

Answers: ______

Q35. If the surface area of a box is found by taking the sum of the areas of each of the faces of the box, what is the surface area of a box with dimensions 6 in. by 8 in. by 10 in.?

\[ \text{A). } 76 \text{ sq. in.} \]
\[ \text{B). } 176 \text{ sq. in.} \]
\[ \text{C). } 276 \text{ sq. in.} \]
\[ \text{D). } 376 \text{ sq. in.} \]
\[ \text{E). } 476 \text{ sq. in.} \]

Answers: ______

Q36. Find the area of the shaded region.
• A). 6π
• B). 16π
• C). 33π
• D). 62π
• E). 77π
Answers: ______

Q37. The area of square WXYZ is 100 sq. cm. Find the length of diagonal WY in cm.
• A). 10 √2 cm
• B). 20 √2 cm
• C). 10 cm
• D). 15 cm
• E). 10 √5 cm
Answers: ______

Q38. Which of the following could be the value of x when y is equal to 15 for the equation y = 4x^2 - 1?
• A). –1
• B). –2
• C). –4
• D). 0
• E). √2
Answers: ______

Q39. At Roosevelt High, Kristen won the election for class president with 60% of the vote. Of that 60%, 75% were female. If 540 students voted, how many female students voted for Kristen?
• A). 149
• B). 243
• C). 278
• D). 313
• E). 416
Answers: ______

Q40. If \( \cos \theta = \frac{12}{13} \) and \( \tan \theta = \frac{5}{12} \), then \( \sin \theta = \)
• A). 5/13
• B). 7/9
• C). 5/11
• D). 12/5
• E). 13/5
Answers: ______
Q41. The formula for the volume of a rectangular solid is \( V = lwh \). If each dimension is tripled, how many times the original volume will the new volume be?

- A). 3
- B). 9
- C). 27
- D). 89
- E). 173

Answers: _____

Q42. In a right triangle, the two non-right angles measure 7x and 8x. What is the measure of the smaller angle?

- A). 15°
- B). 27°
- C). 42°
- D). 49°
- E). 61°

Answers: _____

Q43. The length of a rectangle is twice the width. If the perimeter of the rectangle is 72 feet, what is the length of the rectangle?

- A). 3
- B). 7
- C). 12
- D). 24
- E). 32

Answers: _____

Q44. The area of a triangle is 80 sq. in. Find the height if the base is 5 in. more than the height.

A. \( \frac{1 + \sqrt{629}}{2} \)

B. \( \frac{-9 \pm \sqrt{5}}{2} \)

C. \( 4 \pm \sqrt{85} \)

D. \( 5 - \sqrt{665} \)

E. \( \frac{-5 + \sqrt{665}}{2} \)

Answers: _____
Q45. Three of the vertices of a square are (−2,3), (5,3), and (−2,−4). What is the length of a side of the square?

- A). 4
- B). 5
- C). 6
- D). 7
- E). 9

Answers: ______

Q46. Which of the following lines is perpendicular to \( y = 3x + 1 \)?

- A). \( 6x + 5 = 2y \)
- B). \( 4 + y = 3x \)
- C). \( −9y = −3 + 2x \)
- D). \( 2x + y = 4 \)
- E). \( 3y + x = 5 \)

Answers: ______

Q47. What is the midpoint of line \( XY \) if \( X(−4,−2) \) and \( Y(3,8) \)?

- A). (−7,6)
- B). (−0.5,3)
- C). (−1,6)
- D). (−7,−10)
- E). (2,−1.5)

Answers: ______

Q48. Simplify \( \left(\frac{1}{2}x^2\right)^3 \)

- A). \( 6x^3 \)
- B). \( 8x^6 \)
- C). \( 8/x^6 \)
- D). \( 8x \)
- E). \( 6x \)

Answers: ______

Q49. Line \( l \) is parallel to line \( m \). Find the measure of angle \( x \).
• A). 21°
• B). 39°
• C). 99°
• D). 106°
• E). 121°

Answers: ______

Q50. Find the radius of the circle with center (4,−2) that is tangent to the y-axis
• A). 2
• B). 6
• C). 1
• D). 4
• E). 10

Answers: ______

Q51. Find the area, in square units, of the circle shown by the equation \((x − 5)^2 + (y − 2)^2 = 36\)
• A). 4\(\pi\)
• B). 25\(\pi\)
• C). 25\(\pi\)
• D). 36\(\pi\)
• E). 48\(\pi\)

Answers: ______

Q52. \(m \angle ABC = 120^\circ\) and \(m \angle CDE = 110^\circ\). Find the measure of \(\angle C\)

• A). 21°
• B). 39°
• C). 99°
• D). 106°
• E). 121°
Q53. What is the minimum value of 9 \cos x?
- A) -9
- B) -2
- C) 0
- D) 2
- E) 9

Answers: _____

Q54. The Abrams put a cement walkway around their rectangular pool. The pool’s dimensions are 12 ft. by 24 ft., and the width of the walkway is 5 ft. in all places. The area of the walkway is
- A) 205 sq. ft.
- B) 288 sq. ft.
- C) 460 sq. ft.
- D) 493 sq. ft.
- E) 748 sq. ft.

Answers: _____

Q55. Triangle XYZ is an equilateral triangle. \overline{YW} YW is an altitude of the triangle. If \overline{XY} XY is 10 in., what is the length of the altitude?
- A) 5 in.
- B) 5 \sqrt{3} in.
- C) 10 in.
- D) 10 \sqrt{3} in.
- E) 5\sqrt{2} in.

Answers: _____

Q56. Find the value of \cos A if angle A is acute and \sin A = \frac{7}{10}
- A) \frac{3}{10}
- B) \frac{1}{9}
- C) \frac{7}{\sqrt{51}}
- D) \frac{51}{10}
- E) \frac{\sqrt{51}}{10}

Answers: _____

Q57. Find the value of x
Q58. Which equation corresponds to the graph?

A). \( \frac{x^2}{25} + \frac{y^2}{9} = 1 \)

B). \( 25x^2 + 9y^2 = 1 \)

C). \( \frac{x^2}{25} - \frac{y^2}{9} = 1 \)

D). \( \frac{y^2}{25} + \frac{x^2}{9} = 1 \)

E). \( 5x^2 + 3y^2 = 3 \)

Answers: ______
Q59. What is the inequality that corresponds to the graph?

• A). \( y > 3x + 2 \)
• B). \( y \leq -3x + 2 \)
• C). \( y \geq -3x + 2 \)
• D). \( y < 3x + 2 \)
• E). \( y < -3x + 2 \)

Answers: ______

Q60. What is the domain of the function \( f(x) = \frac{4x - 5}{x^2 + 3x - 4} \)?

• A). \( \{x \mid x \neq 0\} \)
• B). \( \emptyset \)
• C). all real numbers
• D). \( \{x \mid x \neq 3\} \)
• E). \( \{x \mid x \neq -4 \text{ and } x \neq 1\} \)

Answers Keys and Solution Link: ACT Math Practice Test 2