

Diagnostic Test: ADP™ Algebra II

Name _____ Date _____

Diagnostic Test I: Chapter I

The Real Number System

Choose the letter preceding the best answer choice.

- Which expression is equivalent to $\frac{-4 + 3(4 - 8)}{2^3 + 4 \times 2}$?
A. $-\frac{5}{4}$ C. -1
B. $-\frac{8}{7}$ D. $\frac{1}{6}$
- Which equation demonstrates the distributive property for real numbers?
A. $\frac{1}{2} \times 1 = \frac{1}{2}$
B. $0.75 + 0.62 = 0.62 + 0.75$
C. $(\frac{1}{5} \times \frac{2}{3}) \times \frac{5}{7} = \frac{1}{5}(\frac{5}{7} \times \frac{2}{3})$
D. $-6(-2 + 4) = (-6)(-2) + (-6)(4)$
- Evaluate $3pq - q$ for $p = \frac{1}{2}$ and $q = -\frac{1}{3}$.
A. $-\frac{5}{6}$ C. $\frac{1}{6}$
B. $-\frac{1}{6}$ D. $\frac{5}{6}$
- Simplify the expression below.
 $\frac{4^{-2}}{2^{-5}} + (3^2)^2$
A. 20 C. $81\frac{1}{2}$
B. $20\frac{1}{2}$ D. 83
- Which expression is equivalent to $|-6 - 8|$?
A. $-(-6 - 8)$ C. $(8 - 6)$
B. $(6 - 8)$ D. $-(8 - 6)$
- Which is the simplified expression for $\frac{a^2 \cdot a^{-6}}{a^3}$?
A. $\frac{1}{a^7}$ C. a^5
B. a D. a^7
- If x and y are integers, which equation is always true?
A. $\frac{x}{y} = \frac{y}{x}$
B. $x - y = x + (-y)$
C. $x - y = y - x$
D. $2(a + b) = a(2 + b)$
- Jake walked for x minutes. His friend walked for 15 minutes less than twice the time Jake walked. Which expression represents the total time Jake and his friend walked?
A. $x + (2x - 15)$
B. $x(2x + 15)$
C. $x + (2x + 15)$
D. $x + (15x - 2)$
- Given that $-4y = m$, simplify $m + 5y$.
A. $-y$
B. y
C. $m - 4y$
D. $m + 4y$

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Diagnostic Test 2: Chapter 2

Equations and Inequalities

Choose the letter preceding the best answer choice.

- 1 What is the solution to the equation?

$$4|x + 6| = 12x - 8$$

- A. $x = 4$ C. $x = -4$ or -1
B. $x = 4$ or -1 D. no solution

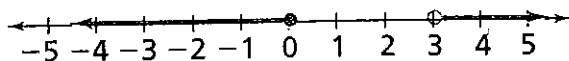
- 2 Which set of coordinate pairs satisfies both $y < -\frac{5}{3}x + 10$ and $x \geq 0$?

- A. $(-2, 0), (-1, -3), (0, -4)$
B. $(0, 0), (1, 1), (3, 1)$
C. $(3, 1), (5, -2), (7, 1)$
D. $(5, -2), (5, 1), (6, 0)$

- 3 The kinetic energy of an object can be calculated using the formula $E = \frac{1}{2}mv^2$. Solve the equation for v .

- A. $v = \left(\frac{2E}{m}\right)^2$ C. $v = \sqrt{2mE}$
B. $v = \sqrt{\frac{2E}{m}}$ D. $v = (2mE)^2$

- 4 Which solution is shown on the graph?



- A. $-2 \leq 3x - 2 < 7$
B. $-2 \geq 3x - 2 > 7$
C. $5x > 0$ or $3x - 2 \leq 7$
D. $5x \leq 0$ or $3x - 2 > 7$

- 5 What is the equation of the line that is perpendicular to the line $x - 2y = 5$ and passes through the point $(1, -9)$?

- A. $y = -2x - 7$ C. $y = -2x + 9$
B. $y = -\frac{1}{2}x - 1$ D. $y = \frac{1}{2}x + 3$

- 6 A scientist adds 20 milliliters of pure alcohol to a 150-milliliter mixture that is 15% alcohol. What percent of alcohol is in the resulting mixture?

- A. 25% C. 54.5%
B. 45.5% D. 75%

- 7 Find the value of r in

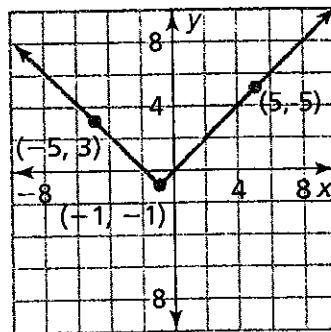
$$-(2 - r) + 8 = -5r + 30.$$

- A. -4 C. 4
B. $-\frac{1}{4}$ D. 6

- 8 What is the slope and y -intercept of the graph of $2x - 5y = 6$?

- A. The slope is $\frac{2}{5}$ and the y -intercept is $-\frac{6}{5}$.
B. The slope is $\frac{2}{5}$ and the y -intercept is 6 .
C. The slope is 2 and the y -intercept is $-\frac{6}{5}$.
D. The slope is 2 and the y -intercept is 6 .

- 9 Which equation represents the graph?



- A. $y = |x - 1|$
B. $y = -|x + 1|$
C. $y = -|x + 1| - 1$
D. $y = |x + 1| - 1$