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Multiple Choice review of basic algebra concepts

1. What is the correct factorization of $x^2 - 4$?
   A. $x(x - 4)$
   B. $(x - 2)^2$
   C. $(x - 2)(x + 2)$
   D. $(x + 4)^2$
   E. $x^2(1 - 2)$
2. If a and b are real numbers, which of the following statements is true?
   A. $a(b + c) = ab + c$
   B. $a(b + c) = a + bc$
   C. $a(b + c) = ab + ac$
   D. $a(b + c) = ab - ac$
   E. $a(b + c) = ac + b$
3. If $x = 2$ and $y = 3$, what is the value of $2x^2 - 3y$?
   A. 7
   B. 1
   C. -1
   D. 5
   E. -5
4. What is the solution to the equation $2x - 3 = 5$?
   A. $x = 4$
   B. $x = 1$
   C. $x = 2$
   D. $x = 4/2$
   E. $x = 3/2$
5. What is the value of $\frac{2}{3} + \frac{1}{2}$?
   A. $\frac{1}{2}$
   B. $\frac{7}{6}$
   C. $\frac{5}{6}$
   D. $\frac{4}{3}$
   E. $\frac{8}{6}$
6. What do you get when simplifying the fraction $\frac{2x^2 - 8x}{2x}$?
   A. $x - 4$
   B. $x - 8$

C. $2x - 8$

D. $x^2 - 4x$

E. $2x^2 - 8$

7. If $x = \frac{1}{2}$, what is the value of $2x^2 + 3x - 2$?

A. $\frac{1}{2}$

B. -1

C. $-\frac{1}{2}$

D. 1

E. $\frac{1}{4}$

8. How does this expression simplify? $\frac{15x^3 + 30x^2 + 10}{15}$

A. $x^3 + 2x^2 + \frac{3}{2}$

B. $x^3 + x^2 + \frac{2}{3}$

C. $2x^3 + x^2 + \frac{2}{3}$

D. $x^3 + 2x^2 + \frac{1}{3}$

E. $x^3 + 2x^2 + \frac{2}{3}$

9. If $e^{(x+1)} = e^{(2x)}$, what is the value of x?

A. $x = 1$

B. $x = 2$

C. $x = 0$

D. $x = -1$

E. $x = -2$

10. This expression $\frac{x}{y} + \frac{w}{z}$ is equal to:

A. $\frac{xw + yz}{zy}$

B. $\frac{xz + yw}{zx}$

C. $\frac{xw + yz}{zx}$

D. $\frac{xz + yw}{yz}$

E. $\frac{xz + yw}{yw}$

11. This expression $\frac{w + 4}{3 + z}$ is equal to:

A. $\frac{w + 4}{3} + \frac{w + 4}{z}$

B. $\frac{w}{3 + z} + \frac{4}{3 + z}$

C. $\frac{w}{3} + \frac{4}{z}$

D. $\frac{w}{z} + \frac{4}{3}$

12. The following expression x^2x^4 is equal to:
    A. x^6
    B. x^8
    C. x^{16}
    D. x^{32}
    E. x^2

13. The following expression $2x^{-1}$ is equal to:
    A. $\frac{2}{x^{-1}}$
    B. $\frac{1}{2x}$
    C. $\frac{2}{x}$
    D. $2x$
    E. None of the above

14. The following expression $(x^2)^3$ is equal to:
    A. x^5
    B. x^6
    C. x^8
    D. x^9
    E. x^{-1}

Solutions

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