BEGINNING ALGEBRA ADAPTIVE ASSESSEMENT (BAAD) PRACTICE TEST

Algebraic Expressions

A. Simplify algebraic expressions using the order of operations

1. Evaluate the expression: $-4 + x \cdot 6 - 9 \;\; when \; x = 4$
   a. -9
   b. -3
   c. 19
   d. 11

2. Simplify: $6 - 3 \cdot 2 + 10$
   a. 10
   b. 16
   c. 36
   d. 22

3. Simplify: $(10-7)^2 + 2(8+3)$
   a. 73
   b. 31
   c. 28
   d. 70

B. Factor polynomial expressions

4. Factor completely: $2x^2 - 18$
   a. $(2x+6)(x-3)$
   b. $(x+3)(x-3)$
   c. $2(x+3)(x-3)$
   d. $2(x+9)(x-9)$

5. Factor completely: $x^2 - 5x + 6$
   a. $(x-6)(x+1)$
   b. $(x-3)(x-2)$
   c. $(x-3)(x+2)$
   d. $(x-1)(x+6)$

6. Factor completely: $x^4 - 81$
   a. $(x^2+9)(x+3)(x-3)$
   b. $(x+3)^2(x-3)^2$
   c. $(x^2-9)(x^2+9)$
   d. $(x+9)^2(x-9)^2$

C. Define variables and write an expression to represent a quantity in a word problem

7. If the area of a triangle is represented by the formula $A=\frac{1}{2}bh$ and the base of the triangle is 6 inches less than the height, which equation represents the area of the triangle under the given parameters?
   a. $A=\frac{1}{2}(b)(b-6)$
   b. $A=\frac{1}{2}(b)(6-b)$
   c. $A=\frac{1}{2}(6-h)(h)$
   d. $A=\frac{1}{2}(h-6)(h)$

D. Simplify exponential expressions using the law of exponents

8. Simplify: $\left(\frac{3b^6c^2}{d}\right)^3$
   a. $\frac{27b^9c^5}{d^3}$
   b. $\frac{9b^9c^5}{d^3}$
   c. $\frac{27b^{18}c^6}{d^3}$
   d. $\frac{9b^{18}c^6}{d^3}$
9. Simplify: $\frac{x^5}{x^{20}}$
   a. x^{25}
   b. x^4
   c. $\frac{1}{x^4}$
   d. $\frac{1}{x^{15}}$

10. Simplify: $\left(\dfrac{xy^3z^{-6}}{x^6y^{-1}z^{12}}\right)^3$

    a. $\dfrac{y^6}{x^{15}z^{18}}$

    b. $\dfrac{y^{12}}{x^{15}z^{54}}$

    c. $\dfrac{y^7}{x^8z^{21}}$

    d. $\dfrac{y^5}{x^8z^9}$

Equations and Inequalities

A. Solve linear equations in one variable

11. Solve: $3x + 4 = -11$

    a. $x = -\dfrac{7}{3}$

    b. $x = \dfrac{7}{3}$

    c. $x = -5$

    d. $x = 5$

12. Solve: $6(3x - 7) = -6$

    a. $x = 2$

    b. $x = -2$

    c. $x = -1$

    d. $x = 1$

13. Solve: $3x - 5(x + 2) = -7$

    a. $x = \dfrac{3}{2}$

    b. $x = 1$

    c. $x = -\dfrac{3}{2}$

    d. $x = -1$

B. Solve linear inequalities in one variable and graph the solution set on a number line

14. Solve and graph the solution set on the number line: $4 - 3x > 10$

    a. $\xleftarrow[-2]{}\,)$
    b. $(\xrightarrow[-2]{}$
    c. $\xleftarrow[-2]{}\,]$
    d. $[\xrightarrow[-2]{}$

15. Solve and graph the solution set on the number line: $5x - 1 \geq 19$

    a. $\xleftarrow[4]{}\,]$
    b. $[\xrightarrow[4]{}$
    c. $(\xrightarrow[4]{}$
    d. $\xleftarrow[4]{}\,)$

C. Solve equations for a specified variable

16. Solve for *x*: $3x + 4y = 12$

    a. $x = \frac{4}{3}y - 4$
    b. $x = \frac{3}{4}y - 4$
    c. $x = -\frac{4}{3}y + 4$
    d. $x = -\frac{3}{4}y + 4$

17. Solve for *y*: $\frac{1}{2}(y + 4x) = 16$

    a. $y = 8 - x$
    b. $y = 32 - 4x$
    c. $y = x - 8$
    d. $y = 4x - 32$

D. Solve systems of equations in two variables, both graphically and algebraically

18. Solve the system of equations: $\begin{aligned} x+3y&=7 \\ 2x+y&=-6 \end{aligned}$

    a. $(4,-5)$
    b. $(-4,-5)$
    c. $(-5,4)$
    d. $(5,-4)$

E. Solve quadratic equations by factoring

19. Solve: $3x^2-21x+36=0$

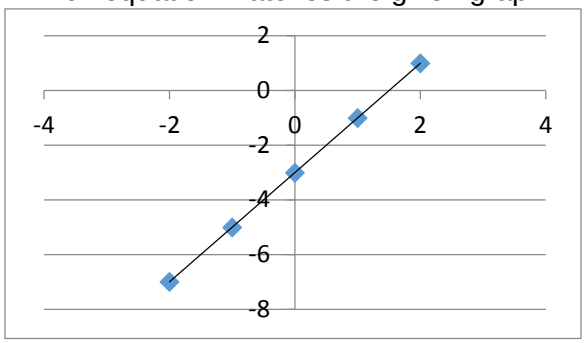
    a. $x=3,\ x=4$
    b. $x=-4,\ x=-3$
    c. $x=4,\ x=-3$
    d. $x=3,\ x=-4$

20. Solve: $5x^2-13x-6=0$

    a. $x=3,\ x=-\frac{5}{2}$
    b. $x=3,\ x=-\frac{2}{5}$
    c. $x=-5,\ x=6$
    d. $x=\frac{6}{5},\ x=-1$

F. Match given linear equations to their graphs, tables, or ordered pairs

21. Which equation matches the given graph?



    a. $3x-y=2$
    b. $y=2x-3$
    c. $y=\frac{3}{2}x-2$
    d. $2x+y=3$

G. Determine the equation of a line passing through two given points

22. Find the equation of the line that passes through the points $(3,-3)$ and $(6,-5)$

    a. $y=-\frac{8}{3}x+5$

    b. $y=-\frac{3}{2}x+\frac{3}{2}$

    c. $y=-\frac{2}{3}x-1$

    d. $y=\frac{3}{8}x-\frac{31}{8}$

H. Determine the equation of a line given the slope and one point

23. Find the equation of the line whose slope is 6 and which passes through the point $(-4,0)$

    a. $y=-4x+6$

    b. $y=6x-4$

    c. $y=6x-24$

    d. $y=6x+24$

I. Determine the x- and y-intercepts of a given line from its equation

24. Find the x- and y-intercepts of: $y=-\frac{1}{2}x+6$

    a. $\left(0,-\frac{1}{2}\right)$ and $(6,0)$

    b. $(0,6)$ and $(12,0)$

    c. $(0,6)$ and $\left(-\frac{1}{2},0\right)$

    d. $(0,12)$ and $(6,0)$

25. Find the x- and y-intercepts of: $-2x+3y=18$

    a. $(0,6)$ and $(-9,0)$

    b. $(0,-6)$ and $(9,0)$

    c. $(0,3)$ and $(-2,0)$

    d. $(0,-2)$ and $(3,0)$

Rational Equations and Radical Expressions

A. Solve rational equations

26. Solve: $\frac{2}{3x-1}=\frac{5}{x+4}$
    a. $x=-4$
    b. $x=\frac{1}{3}$
    c. $x=13$
    d. $x=1$

27. Solve: $\frac{x-2}{x^2-3x+4}=\frac{3}{3x+2}$
    a. $x=\frac{13}{8}$
    b. $x=-\frac{13}{8}$
    c. $x=\frac{16}{5}$
    d. $x=\frac{5}{16}$

B. Simplify radical expressions

28. Simplify: $\sqrt[3]{16}\cdot\sqrt[3]{54}$
    a. $12\sqrt[3]{6}$
    b. $24\sqrt[3]{6}$
    c. $24\sqrt[3]{4}$
    d. $6\sqrt[3]{4}$

29. Simplify: $\sqrt[4]{32x^9}$
    a. $2x^2\sqrt[4]{2x}$
    b. $16x^4\sqrt[4]{2x}$
    c. $8x^2\sqrt[4]{x}$
    d. $4x^2\sqrt[4]{8x}$

30. Simplify: $\sqrt{x^2-12x+36}$
    a. $|x+6|$
    b. $|-6x|$
    c. $|x-6|$
    d. $|6x|$

ANSWER KEY FOR BAAD

1. D
2. A
3. B
4. C
5. B
6. A
7. D
8. C
9. D
10. B
11. C
12. A
13. C
14. A
15. B
16. C
17. B
18. C
19. A
20. B
21. B
22. C
23. D
24. B
25. A
26. D
27. C
28. D
29. A
30. C