

Student Name: _____ Grade: 9 Advanced

Date: _____ Subject: Mathematics Subject Teacher: Abdulkader Amro

Choose ONE correct answer for each question.

1. Write an equation for: Two added to three times a number m is the same as 18.

A. $3m - 2 = 18$

B. $2m + 3 = 18$

C. $3(m + 2) = 18$

D. $3m + 2 = 18$

2. Write an equation for: The product of five and the sum of a number x and three is twelve.

A. $5x + 3 = 12$

B. $5(x + 3) = 12$

C. $5(x - 3) = 12$

D. $5x + 3 = 60$

3. Write an equation for: The quotient of 24 and x equals 14 minus 2 times x .

A. $24x = 14 - 2x$

B. $x/24 = 14 - 2x$

C. $24/x = 14 - 2x$

D. $24/x = 14 + 2x$

4. Write an equation for: Nine times a number y subtracted from 85 is seven times the sum of four and y .

A. $85 + 9y = 7(4 + y)$

B. $85 - 9y = 7(4 + y)$

C. $9y - 85 = 7(4 + y)$

D. $85 - 9y = 7(4 - y)$

5. Lily has walked 2 miles. Her goal is to walk 6 miles. She plans to reach her goal by walking 3 miles each hour for the rest of her walk. Which equation finds the number of hours h it will take Lily to reach her goal?

A. $3 + 2h = 6$

B. $2 + 6h = 3$

C. $3h - 2 = 6$

D. $2 + 3h = 6$

6. Paulina has completed 24 of 42 math problems. She plans to finish her homework by completing 9 problems each hour h . Which equation finds h ?

A. $24 + 42h = 9$

B. $9 + 24h = 42$

C. $24 + 9h = 42$

D. $42 + 9h = 24$

7. Of 107 athletes surveyed, 48 play baseball and the remaining 33 who play basketball do not play baseball. Which equation can be used to find the number x of athletes who do not play basketball?

A. $x + 48 = 107$

B. $x + 33 = 48$

C. $48x + 33 = 107$

D. $x + 48 + 33 = 107$

8. Last year, the number of cars sold was 39,000 more than three times the number of trucks sold. There were 216,000 cars sold last year. Which equation finds the number of trucks t sold?

A. $3t + 39,000 = 216,000$

B. $3t - 39,000 = 216,000$

C. $t + 39,000 = 216,000$

D. $39,000t + 3 = 216,000$

9. Translate: Twice a increased by the cube of a equals b .

A. $2a + a^3 = b$

B. $2a + 3a = b$

C. $2(a + a^3) = b$

D. $a^2 + a^3 = b$

10. Translate: Seven less than the sum of p and t is as much as 6.

A. $p + t + 7 = 6$

B. $7 - p - t = 6$

C. $7(p + t) = 6$

D. $p + t - 7 = 6$

11. Translate: The sum of x and its square is equal to y times z .

A. $x + 2x = yz$

B. $x^2 - x = yz$

C. $x + x^2 = yz$

D. $x + x^2 = y + z$

12. Translate: Four times the sum of f and g is identical to six times g .

A. $4f + g = 6g$

B. $4(f - g) = 6g$

C. $4(f + g) = 6g$

D. $4f + 4g = 6f$

13. Translate: The area A of a square is the length of a side ℓ squared.

A. $A = 2\ell$

B. $A = \ell^2$

C. $A = 4\ell$

D. $A = \ell/2$

14. Translate: The perimeter P of a triangle is equal to the sum of the lengths of sides a , b , and c .

A. $P = abc$

B. $P = a + b + c$

C. $P = 2a + 2b + 2c$

D. $P = a + b - c$

15. Translate: The perimeter of a rectangle is equal to 2 times the length plus twice the width.

A. $P = 2\ell + 2w$

B. $P = \ell + w$

C. $P = 2\ell w$

D. $P = \ell^2 + w^2$

16. Translate: The density of an object is the quotient of its mass and its volume.

A. $d = \frac{m}{v}$

B. $d = \frac{v}{m}$

C. $d = mV$

D. $d = m + V$

17. Translate: Simple interest is computed by finding the product of the principal amount p , the interest rate r , and the time t .

A. $I = prt$

B. $I = p + r + t$

C. $I = \frac{p}{rt}$

D. $I = p(r + t)$

18. Translate: The surface area of a rectangular prism is 2 times the sum of the width w times height h , length ℓ times width w , and length ℓ times height h .

A. $S = 2(wh + \ell w + \ell h)$

B. $S = wh + \ell w + \ell h$

C. $S = 2wh + \ell w + \ell h$

D. $S = 2(w + h + \ell)$

19. Write a sentence for: $j + 16 = 35$.

A. The product of j and 16 is 35.

B. 16 less than j is 35.

C. The sum of j and 16 is 35.

D. j divided by 16 is 35.

20. Write a sentence for: $4m = 52$.

A. Four more than m is 52.

B. m divided by 4 is 52.

C. Four times m is 52.

D. Four less than m is 52.

21. Write a sentence for: $7(p + 23) = 102$.

A. Seven plus the sum of p and 23 is 102.

B. Seven times the sum of p and 23 is 102.

C. The sum of seven and p is 23 times 102.

D. Seven times p plus 23 is 102.

22. Write a sentence for: $t^2 - 15 = t + 19$.

A. The square of t minus 15 is equal to t plus 19.

B. The square of t plus 15 is equal to t minus 19.

C. Fifteen less than t is equal to $t^2 + 19$.

D. The square of t divided by 15 is $t + 19$.

23. Write a sentence for: $\frac{2}{5}v + \frac{3}{4} = \frac{2}{3}x^2$.

A. Two-fifths of v minus three-fourths equals two-thirds of x .

B. Two-fifths of v plus three-fourths equals two-thirds of x squared.

C. Two-fifths of v plus three-fourths equals two-thirds of x .

D. Two-fifths of v times three-fourths equals two-thirds of x squared.

24. Write a sentence for: $\frac{1}{3} - \frac{4z}{5} = \frac{4y^3}{3}$.

A. One-third plus four-fifths of z equals four-thirds of y squared.

B. One-third minus four-fifths of z equals four-thirds of y .

C. One-third minus four-fifths of z equals four-thirds of y cubed.

D. One-third divided by four-fifths of z equals four-thirds of y cubed.

25. Write a sentence for: $g + 10 = 3g$.

A. The difference of g and 10 is three times g .

B. The sum of g and 10 is equal to three times g .

C. The sum of g and 3 is 10 times g .

D. g plus 10 is equal to g divided by 3.

26. Write a sentence for: $2(t + 4q) = 2q + 4t$.

A. Twice the difference of t and $4q$ equals $2q + 4t$.

B. Two times t plus $4q$ equals $2q$ minus $4t$.

C. The sum of $2t$ and $4q$ equals $2q$ plus $4t$.

D. Twice the sum of t and $4q$ equals twice q plus four times t .

27. Write a sentence for: $4(a + b) = 9a$.

- A. Four times the sum of a and b is equal to nine times a.
- C. The sum of 4a and b is nine times a.

- B. Four times the difference of a and b is nine times a.
- D. Four times a plus b is equal to nine plus a.

28. Write a sentence for: $8(2y - 6x) = 4 + 2x$.

- A. Eight times the sum of 2y and 6x equals $4 - 2x$.
- C. Eight times 2y minus 6x equals 4 plus 2x.

- B. Eight times the difference of 2y and 6x equals 4 plus 2x.
- D. The difference of $8(2y)$ and 6x equals $4 + 2x$.

29. Write a sentence for: $(\frac{1}{2})(f + y) = f - 5$.

- A. One-half of f plus y equals f plus 5.
- C. The sum of f and y is twice f minus 5.

- B. One-half of the sum of f and y equals f minus 5.
- D. One-half of the difference of f and y equals $f - 5$.

30. Write a sentence for: $k^2 - n^2 = 2b$.

- A. The square of k minus n equals b^2 .
- C. The difference of the squares of k and n equals twice b.

- B. The sum of the squares of k and n equals twice b.
- D. The difference of k and n squared equals 2b.

31. For $V = \pi r^2 h$, which sentence correctly states the formula and its meaning?

- A. The volume equals π times the radius times the height squared.
- C. The volume equals π times the diameter squared plus height.

- B. The surface area of a cylinder equals $\pi r^2 h$.
- D. The volume V of a cylinder equals π times the square of its radius r times its height h.

32. For $V = s^3$, which sentence correctly states the formula and its meaning?

- A. The volume V of a cube equals the side length s cubed.
- C. The surface area equals s^3 .

- B. The volume equals three times the side length.
- D. The volume equals the side length squared.

33. For $I = Prt$, which sentence correctly states the formula and its meaning?

- A. Interest equals principal plus rate plus time.
- C. Interest equals the rate divided by principal and time.

- B. Simple interest equals P divided by rt .
- D. Simple interest I equals the principal P times the rate r times the time t.

34. For $A = P(1 + \frac{r}{n})^{nt}$, which sentence correctly states the compound-interest formula and its meaning?

A. A is area, P is perimeter, r is radius, n is the number of sides, and t is thickness.

C. A is interest only, P is the rate, and t is the number of compounds per year.

B. A is the principal, P is the amount, and n is the annual rate.

D. A is the amount, P is the principal, r is the rate, n is the number of times interest is compounded per year, and t is time in years.