Variables & Expressions

Name_____

1. If a and b are both odd integers, which of the following MUST also be an odd integer?
[1] $a + b$ [2] $a - b$ [3] $a \cdot b$ [4] a/b 1._____

2. The expression $(3c - 3d) - (c - 3d)$ when simplified is
[1] $2c - 6d$ [2] $2c$ [3] $4c - 6d$ [4] $4c$ 2._____

3. If the square root of x is greater than x, then x could be
[1] 0 [2] 1/2 [3] 2 [4] 4 3._____

4. If $3x^2 - 7y + 6$ is subtracted from $4x^2 - 3y + 4$, the result is
[1] $7x^2 - 10y + 10$ [2] $x^2 - 10y - 2$ [3] $x^2 + 4y - 2$ [4] $-x^2 - 4y + 2$ 4._____

5. $\frac{1}{x+1} + \frac{1}{x}$, where $x \neq 0, -1$, simplifies to

[1] $\frac{2x+3}{x^2+x}$ [2] $\frac{2x+1}{x^2+x}$ [3] $\frac{2}{2x+1}$ [4] $\frac{3}{x^2}$ 5._____

6. If $n - 5$ is an even integer, what is the next larger consecutive even integer
[1] $n - 7$ [2] $n - 3$ [3] $n - 4$ [4] $n + 2$ 6._____

7. Find the sum of $3x^2 + x + 8$ and $x^2 - 9$.
[1] $4x^2 + x - 1$ [2] $4x^2 + x - 17$ [3] $4x^4 + x - 1$ [4] $3x^4 + x - 1$ 7._____

8. The expression $(4a + 2b) - (2a - 3b) - (a - b)$ when simplified is
[1] $6a + 6b$ [2] $a + 6b$ [3] $-2b$ [4] $6b$ 8._____

9. The Pentagon building in Washington, D.C., is shaped like a regular pentagon. If the length of one side of the Pentagon is represented by $n + 2$, its perimeter would be represented by
[1] $10n$ [2] $n + 10$ [3] $5n + 2$ [4] $5n + 10$ 9._____

10. The expression $(5x + 6y) - (7x - 2y) + (x - 2y)$ when simplified is
[1] $-x + 6y$ [2] $x + 6y$ [3] $13x - 2y$ [4] $13x + 10y$ 10._____

11. Which expression represents "eight less than the product of five and a number"?
[1] $8 - 5n$ [2] $8 - 5 + n$ [3] $8 - (5 + n)$ [4] $5n - 8$ 11._____

12. Find the missing terms: $(x^2 + 8x + \_\_) - (\_\_\_ + 7x + 4) = -3x^2 + x + 11$

[1] $5; 4x^2$ [2] $15; 4x^2$ [3] $15; -2x^2$ [4] $-15; -2x^2$

12._____

13. $(x + 4)^2 =$

[1] $x^2 + 16$ [2] $x^2 + 4x + 16$ [3] $x^2 + 8x + 16$ [4] $x^2 + 4x + 8$

13._____

14. $(x + 1)(x^2 + 2x + 1) =$

[1] $x^3 + 2x^2 + x + 1$ [2] $x^3 + 3x^2 + 3x + 1$

[3] $x^3 + 3x^2 + x + 1$ [4] $x^2 + 2x + 2$

14._____

15. The side of a cube is represented by $2x - 1$. Find, in terms of x, the volume of the cube.

[1] $8x^3 - 12x^2 + 6x - 1$ [2] $4x^2 - 4x + 1$

[3] $8x^3 - 1$ [4] $8x^3 - 12x^2 - 6x - 1$

15._____

16. $\dfrac{x^2 - 25}{x - 5} =$ [1] 5 [2] $x - 5$ [3] $5x$ [4] $x + 5$

16._____

17. For what value of x is this expression undefined? $\dfrac{3xyz}{2x - 4}$

[1] -2 [2] 2 [3] 0 [4] 4

17._____

18. $\left(d^2 + 4d - 32\right) \div \left(d - 4\right) =$

[1] $4d - 8$ [2] $d + 8$ [3] $d - 8$ [4] $d + 9$

18._____

19. Solve for x: $\dfrac{5x + 1}{2} + \dfrac{x - 2}{3} = \dfrac{8x + 8}{6}$

[1] 1 [2] 2 [3] -1 [4] -2

19._____

20. Factor: $25x^6 - 121y^4$

[1] $55(x^3 - y^2)(x^3 + y^2)$ [2] $(5x^3 - 11y^2)(5x^3 - 11y^2)$

[3] $(5x^3 - 11y^2)(5x^3 + 11y^2)$ [4] $(5x^3 + 11y^2)(5x^3 + 11y^2)$

20._____