Year 7 Algebraic Expressions – Knowledge Indicator

Q1.   Which expression is equivalent to 4×2?

$2 + 2 + 2 + 2$	4^2	2^4	$4 + 4 + 4 + 4$
A	**B**	**C**	**D**

Q2.   Which expression is equivalent to $6 + 6 + 6 + 6$?

$6 + 4$	6^4	$4(3 + 3)$	6×6
A	**B**	**C**	**D**

Q3.   How many matches will it take to make the next shape?

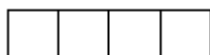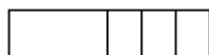| 8	10	13	16
A	**B**	**C**	**D**

Q4.   There is a bag of apples. Joe is not sure how many apples are in the bag. Liana gives him 3 more apples. Which bar model represents this situation?
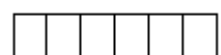

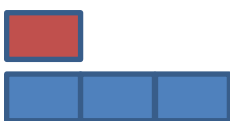| **A**	**B**	**C**	**D**

Q5.   Zach has four hats. Lane has three times as many hats as Zach. Which bar model represents this situation?

A	**B**	**C**	**D**

Q6. Which of the following represents an **equation**?

$4x + 2 = 10$	10	$4x + 2$	x
A	**B**	**C**	**D**

Q7. Which of the following is a **pronumeral**?

$<$	4	$\times$	a
A	**B**	**C**	**D**

Q8. Which is the **variable** in the following equation?

$$2x + 3 =$$

2	x	$+$	3
A	**B**	**C**	**D**

Q9. Which of the following is a **constant**?

a	$5y$	$\times$	7
A	**B**	**C**	**D**

Q10. What is the **coefficient** in the following equation?

$$9x - 3 =$$

9	x	$-$	3
A	**B**	**C**	**D**

Q11. Which algebraic expression represents the following situation?

'Simon has x fish in his aquarium. He buys 10 more fish. How many fish does he have now?'

$x + 10$	$10x$	$x - 10$	$\dfrac{x}{10}$
A	**B**	**C**	**D**

Q12. Which algebraic expression represents the following situation?

'The sum of x and 5 is multiplied by 3.'

$x + 5 \times 3$	$3x + 5$	$3(x + 5)$	$5 - x \times 3$
A	**B**	**C**	**D**

Q13. Which is the correct expression for the following case?

'y is equal to the sum of x and 12.'

$y = x + 12$	$y + 12 = x$	$y = 12x$	$y = \dfrac{x}{12}$
A	**B**	**C**	**D**

Q14. The length of a rectangular vegetable garden is 4 m. The perimeter of wire fencing needed to enclose this garden is 13 m. If w represents the width (in m) of the vegetable garden, the equation that can be formed is:

$w + 4 = 13$	$w + 8 = 13$	$2w = 8 = 13$	$2w + 8 = 13$
A	**B**	**C**	**D**

Q15. Which expression best matches the following instruction?

'Choose a number and multiply it by three, then subtract any other number.'

$3a - 1$	$3n - y$	$3m - 3$	$3t$
A	**B**	**C**	**D**

Q16. Which of the following **<u>cannot</u>** be simplified?

$6c + 9c$	$3a + 4b$	$12y + 3y - 4y$	$7ab + 2ba$
A	**B**	**C**	**D**

Q17. The simplified expression for $x + 4y + 6x$ is:

$10xy$	$6x^2 + 4y$	$7x + 4y$	Cannot be simplified.
A	**B**	**C**	**D**

Q18. Collect the like terms and simplify this algebraic expression $a + 4b + 3a - 3b$

$4a^2 + 7b^2$	$3a^2 + 7b$	$4a + 7b$	$4a + b$
A	**B**	**C**	**D**

Q19. The simplified expression for $y^2 + 2y - 3y$ is:

$y^2 - y$	$2y^2 - 3y$	y	$y^2 + 5y$
A	**B**	**C**	**D**

Q20. Simplify the expression $-x + 2y - 3y$

$x + 5y$	$-x - y$	$-x + 2y - 3y$	$-y + x$
A	**B**	**C**	**D**

Q21. What is the following in expanded form?

$$2a(3a - 5b)$$

$2a \times 2ab$	$a - 3b$	$5a^2 - 7ab$	$6a^2 - 10ab$
A	**B**	**C**	**D**

Q22. When expanded, $4(3m + 5)$ is:

$7m + 9$	$17m$	$12m + 20$	$12m + 5$
A	**B**	**C**	**D**

Q23. When factorised, $4x + 28$ is:

$2(x + 14)$	$4(2x + 7)$	$4(x + 7)$	$4(x + 28)$
A	**B**	**C**	**D**

Q24. Simplify the following expression

$$\frac{1}{2}x + 9 + 2x - \frac{3}{2}x$$

$11x - \dfrac{2x}{2}$	$10x$	$2x - \dfrac{2x}{2} + 9$	$x + 9$
A	**B**	**C**	**D**

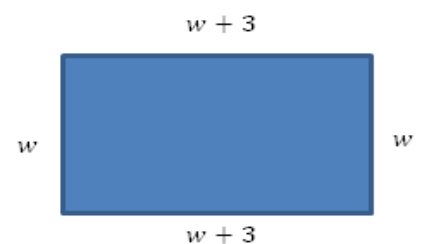**Q25.** The pool is 3 m longer than it is wide, as shown in the diagram. If w represents the width of the pool (in m), the equation to find the area is:

$w^2 + 3w$	$w + w + 3$	$2w + 3$	$w^2 + 3$
A	**B**	**C**	**D**

$w + 3$

w w

$w + 3$

END OF KNOWLEDGE INDICATOR