Study Island

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1. If $x = 11$ and $y = 7$, what is the value of the following expression?

$$x - 6 + 3y$$

- **A.** 22
- **B.** 38
- **C.** 34
- **D.** 26

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2. If $p = 6$ and $q = 4$, what is the value of the following expression?

$$24 + 48 \div p - q$$

- **A.** 20
- **B.** 28
- **C.** 32
- **D.** 8

3.

$$y^2 + 110 \div x - 8$$

What is the value of the expression when $x = 11$ and $y = 10$?

- **A.** 11
- **B.** 191
- **C.** 22
- **D.** 102

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4. If $x = 3$, what is the value of $x^3 + x - 3$?

- **A.** 30
- **B.** 33
- **C.** 27
- **D.** 29

5.

$$4x^2 + 18 - 9x$$

What is the value of the expression when $x = 6$?

- **A.** 540
- **B.** 198
- **C.** 12
- **D.** 108

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6. If $x = 4$, what is the value of $4x^2 - 11$?

- **A.** 53
- **B.** 247
- **C.** 108
- **D.** 75

7.

$$29 + x^2 - 3^3$$

What is the value of the expression when $x = 10$?

- **A.** 102
- **B.** 40
- **C.** 120
- **D.** 22

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8. If $x = 15$ and $y = 5$, what is the value of the following expression?

$$x - 6 + 5y$$

- **A.** 24
- **B.** 34
- **C.** 74
- **D.** 84

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9. If $r = 35$ and $t = 7$, what is the value of the following expression?

$$r + 42 \div t + 12$$

- **A.** 33
- **B.** 60
- **C.** 53
- **D.** 65

10.

$$4x^2 - 18 \div y - (6 + 15)$$

What is the value of the expression when $x = 9$ and $y = 6$?

- **A.** 300
- **B.** 330
- **C.** 48
- **D.** 78

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11. If $m = 18$ and $n = 4$, what is the value of the following expression?

$$m - 3 \times n + 5$$

- **A.** 1
- **B.** 60
- **C.** 11
- **D.** 65

12.

$$4x^2 + 14 - 6x$$

What is the value of the expression when $x = 6$?

- **A.** 554
- **B.** 26
- **C.** 192
- **D.** 122

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13. The perimeter of a rectangle is given by the expression below, where l is the length of the rectangle and w is the width.

$$2(l + w)$$

Find the perimeter of a rectangular window frame with a length of 17 inches and a width of 4 inches.

- **A.** 42 inches
- **B.** 25 inches
- **C.** 34 inches
- **D.** 38 inches

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14. If $a = 2$ and $b = 8$, what is the value of the following expression?

$$8 \div a + 3 \times b$$

- **A.** 56
- **B.** 28
- **C.** 6
- **D.** 10

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15. If $x = 3$, what is the value of $x(17 - x)$?

- **A.** 48
- **B.** 42
- **C.** 14
- **D.** 45

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16. The number of bacteria present after n generations is represented by the expression below, where i is the initial number of bacteria.

$$2^n \times i$$

If there are 10^4 bacteria present initially, what will be the number of bacteria present after 4 generations?

- **A.** 16,000 bacteria
- **B.** 80,000 bacteria
- **C.** 160,000 bacteria
- **D.** 4,000 bacteria

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17. If $x = 4$, what is the value of $7x + 19$?

- **A.** 47
- **B.** 69
- **C.** 104
- **D.** 161

18.

$$7y^3 - 15 + 5y^2 + (18 \div 3)$$

What is the value of the expression when $y = 3$?

- **A.** 255
- **B.** 69
- **C.** 225
- **D.** 79

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19. If $x = 8$, what is the value of $3(x - 3)$?

- **A.** 21
- **B.** 15
- **C.** 33
- **D.** 5

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20. Cecily baked some cookies and put them in a cube-shaped box. Then, she wrapped the box in wrapping paper. The surface area of a cube is represented by the expression below, where *s* is the side length.

$$6s^2$$

Find the least amount of wrapping paper she could have used to wrap the box if its side length is 5.375 inches. Round to the nearest thousandth, if necessary.

- **A.** 1,040.063 square inches
- **B.** 64.5 square inches
- **C.** 173.344 square inches
- **D.** 155.287 square inches