

**Use this space for
computations.**

10 Given the parent function $f(x) = x^3$, the function $g(x) = (x - 1)^3 - 2$ is the result of a shift of $f(x)$

- (1) 1 unit left and 2 units down
- (2) 1 unit left and 2 units up
- (3) 1 unit right and 2 units down
- (4) 1 unit right and 2 units up

11 If $C = 2a^2 - 5$ and $D = 3 - a$, then $C - 2D$ equals

- (1) $2a^2 + a - 8$
- (2) $2a^2 - a - 8$
- (3) $2a^2 + 2a - 11$
- (4) $2a^2 - a - 11$

12 Marc bought a new laptop for \$1250. He kept track of the value of the laptop over the next three years, as shown in the table below.

Years After Purchase	Value in Dollars
1	1000
2	800
3	640

Which function can be used to determine the value of the laptop for x years after the purchase?

- (1) $f(x) = 1000(1.2)^x$
- (2) $f(x) = 1000(0.8)^x$
- (3) $f(x) = 1250(1.2)^x$
- (4) $f(x) = 1250(0.8)^x$

13 The height of a ball Doreen tossed into the air can be modeled by the function $h(x) = -4.9x^2 + 6x + 5$, where x is the time elapsed in seconds, and $h(x)$ is the height in meters. The number 5 in the function represents

- (1) the initial height of the ball
- (2) the time at which the ball reaches the ground
- (3) the time at which the ball was at its highest point
- (4) the maximum height the ball attained when thrown in the air

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14 The function $f(x) = 2x^2 + 6x - 12$ has a domain consisting of the integers from -2 to 1 , inclusive. Which set represents the corresponding range values for $f(x)$?

- (1) $\{-32, -20, -12, -4\}$ (3) $\{-32, -4\}$
(2) $\{-16, -12, -4\}$ (4) $\{-16, -4\}$

15 Which equation has the same solution as $x^2 + 8x - 33 = 0$?

- (1) $(x + 4)^2 = 49$ (3) $(x + 4)^2 = 17$
(2) $(x - 4)^2 = 49$ (4) $(x - 4)^2 = 17$

16 The table below shows the weights of Liam's pumpkin, $l(w)$, and Patricia's pumpkin, $p(w)$, over a four-week period where w represents the number of weeks. Liam's pumpkin grows at a constant rate. Patricia's pumpkin grows at a weekly rate of approximately 52%.

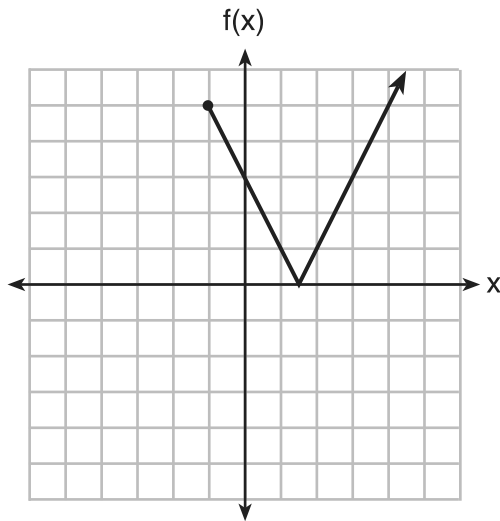
Weeks w	Weight in Pounds $l(w)$	Weight in Pounds $p(w)$
6	2.4	2.5
7	5.5	3.8
8	8.6	5.8
9	11.7	8.8

Assume the pumpkins continue to grow at these rates through week 13. When comparing the weights of both Liam's and Patricia's pumpkins in week 10 and week 13, which statement is true?

- (1) Liam's pumpkin will weigh more in week 10 and week 13.
(2) Patricia's pumpkin will weigh more in week 10 and week 13.
(3) Liam's pumpkin will weigh more in week 10, and Patricia's pumpkin will weigh more in week 13.
(4) Patricia's pumpkin will weigh more in week 10, and Liam's pumpkin will weigh more in week 13.

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17 The function $f(x)$ is graphed below.



The domain of this function is

- (1) all positive real numbers (3) $x \geq 0$
(2) all positive integers (4) $x \geq -1$

18 Which pair of equations would have $(-1, 2)$ as a solution?

- (1) $y = x + 3$ and $y = 2^x$
(2) $y = x - 1$ and $y = 2x$
(3) $y = x^2 - 3x - 2$ and $y = 4x + 6$
(4) $2x + 3y = -4$ and $y = -\frac{1}{2}x - \frac{3}{2}$

19 Which function could be used to represent the sequence 8, 20, 50, 125, 312.5, ..., given that $a_1 = 8$?

- (1) $a_n = a_{n-1} + a_1$ (3) $a_n = a_1 + 1.5(a_{n-1})$
(2) $a_n = 2.5(a_{n-1})$ (4) $a_n = (a_1)(a_{n-1})$