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1) The table shows the linear relationship between the average height in feet of trees on a tree farm and the number of years since the trees were planted.

Number of Years Since the Trees Were Planted	2	5	7	12	19
Average Height (ft)	47	104	142	237	370

What is the **rate of change** of the average height in feet of the trees on the farm with respect to the number of years since the trees were planted?

A. 19 ft/yr **B.** 57 ft/yr **C.** 18 ft/yr **D.** 12 ft/yr

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2) A cooper determined the annual profit in dollars from selling barrels using $p(b) = 168b - 0.02b^2$, where b is the number of barrels sold. How many barrels did the cooper sell if his annual profit was approximately $56,000?

A. 4,200 barrels **C.** 348 barrels
B. 8400 barrels **D.** 160 barrels

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3) The table represents some points on the graph of an exponential function.

x	-2	-1	0	1	2
f(x)	48	24	12	6	3

Which function represents the **same** relationship?

A. $f(x) = 6(2)^x$ **C.** $f(x) = 12(2)^x$
B. $f(x) = 12(\frac{1}{2})^x$ **D.** $f(x) = 6(\frac{1}{2})^x$

4) Which expression is equivalent to $\frac{50a^{-3}b^6c^{13}}{10a^{-5}b^5c^{-2}}$ for all values of a, b, and c where the expression is defined?

A. $\frac{5a^2c^{15}}{b}$ **C.** $\frac{a^3}{5b^4c^3}$
B. $\frac{5c^{16}}{a^4b^6}$ **D.** $\frac{c^3}{5a^3b^4}$

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5) A projectile is launched into the air from the ground. The table shows the height of the projectile, $h(t)$, at different times.

Time (seconds)	Height (meters)
5	1,353
10	2,460
15	3,323
20	3,940
25	4,313
30	4,440
35	4,323

Based on the table, which function can best be used to model this situation?

A. $h(t) = 99t^2 + 858$ **C.** $h(t) = 99t^2 + 1470.3$
B. $h(t) = -4.9t^2 + 295t + 2$ **D.** $h(t) = -4.9t^2 + 295t + 0.6$

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6) Which **expression** is **equivalent** to $(x^3y^2)^4$ for all values of x and y where the expression is defined?

A. x^7y^6 **B.** . xy^2 **C** $x^{12}y^8$ **D.** $x^{20}y^{20}$

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7) The table shows the amount of money in dollars remaining in a bank account as a function of the number of withdrawals that have been made from the account.

Number of Withdrawals n	The amount of money remaining in the account $f(n)$ (in dollars)
1	320
3	284
7	212
12	122

Based on the table, which function models this situation?

A. $f(n) = -9n + 329$ **C.** $f(n) = 9n + 329$

B. $f(n) = 18n + 338$ **D.** $f(n) = -18n + 338$

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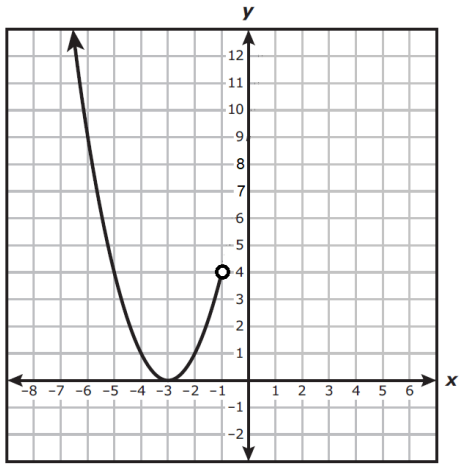
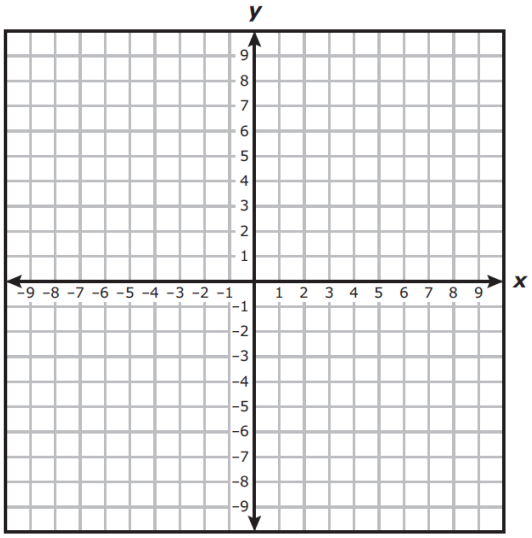
8) A part of a quadratic function is graphed on the grid.



Which inequality best represents the domain of the part shown?

A. $x < -3$ **B.** $y < 4$ **C.** $x < -1$ **D.** $y > 0$

9) The graph of linear function m passes through the points $(-2, 6)$ and $(4, 3)$.



Which statement must be **true**?

A. The slope of graph m is $\frac{1}{2}$

B. The x-intercept of graph of m is 10

C. The graph of m passes through the point $(3, 7)$

D. The zero of m is 5

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10) What is the equation in slope-intercept form of the line that passes through the point $(1, 4)$ and is **parallel** to the line represented by $y = 2.5x - 3$?

A. $y = 2.5x + 1.5$ **C.** $y = 0.4x + 3.6$

B. $y = 2.5x - 1.5$ **D.** $y = 0.4x - 3.6$

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11) The expression $(x^6)^2 \cdot x^4$ is equivalent to x^p.

What is the value of p? Answer : _____.

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Answer Key-1

1	A
2	C
3	B
4	A
5	D
6	C
7	D
8	C
9	B
10	A
11	16