Unit 2: Quadratic Functions and Equations Final Review Assignment

Final Review Assignment

This assignment includes multiple choice and short answer questions. For multiple choice questions, select the best answer. Each is worth 1 mark. Marks assigned to short answer questions are indicated for each question. Be sure to show all necessary work.

(4) *Match the Description with the correct Quadratic Function.*

Description	Quadratic Function
_____ 1. Quadratic function with a range of $\{y \mid y \geq 2\}$	A. $y = -(x-4)^2 - 2$
_____ 2. Quadratic function with a vertex at (4, –2)	B. $y = -(x+4)^2 + 2$
_____ 3. Quadratic function with an axis of symmetry about the line $x = -6$	C. $y = 2(x+1)^2 + 2$
_____ 4. Quadratic function with one x-intercept	D. $y = (x+6)^2 - 5$
	E. $y = 5(x-6)^2$
	F. $y = -2(x-5)^2 + 6$

(4) *Match the Description with the correct Quadratic Function.*

Description	Quadratic Function
_____ 5. Quadratic function with zeros of 3 and –2	A. $y = x^2 + x - 6$
_____ 6. Quadratic function whose graph has a y-intercept of 6	B. $y = x^2 - x - 6$
_____ 7. Quadratic function whose graph has one x-intercept	C. $y = x^2 - x + 6$
_____ 8. Quadratic function whose graph opens downward	D. $y = x^2 + 6x + 9$
	E. $y = x^2 - 6x - 9$
	F. $y = -x^2 + 6x + 9$

(2) 9. Convert the quadratic function $y = -2x^2 - 16x - 37$ to vertex form by completing the square.

(3) 10. The safe stopping distance, d, in metres, of a Harold Dobson motorcycle on wet pavement is given by the function, $d(s) = 0.02(3s^2 + 20s)$, where s is the speed of the motorcycle in metres per second. Find the speed at which the safe stopping distance is 50 metres.

11. An object falls with an acceleration of $a = -9.81\ m/s^2$. A function relating the height from which the object falls, the initial velocity of the object, and the time the object spends in the air is frequently used in physics.

$h(t) = V_0 t + at^2$

$V_0 =$ initial velocity

$t =$ time

$a =$ acceleration due to gravity

Lucy and Kim determine the height of a building by dropping a brick from its roof. The initial velocity is 0 m/s because Lucy simply lets go of the brick. Kim times the fall of the brick to be 3.5 seconds.

(1) a. What is the height of the building?

(3) b. Determine the amount of time the brick is in the air if Lucy throws the brick downward with an initial velocity of –5 m/s. Round to the nearest hundredth of a second.

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