

Algebra 3 Assignment # 10 — Review Worksheet

(1) Sketch a graph of each of the following please.

(a) $y = |x - 2| + 3$

(b) $y = -2|x + 3| - 4$

(c) $y = |2x| + 1$

(d) $y = \llbracket 2x \rrbracket + 1$

(e) $y = 3|x - 2|$

(f) $y = 3\llbracket x - 2 \rrbracket$

(g) $y = \begin{cases} -2x - 3 & \text{if } x < 0 \\ x - 2 & \text{if } x \geq 0 \end{cases}$

(h) $y = \begin{cases} -x + 4 & \text{if } x < 2 \\ x^2 - 2 & \text{if } x \geq 2 \end{cases}$

(2) Sketch a graph of each of the following. Label the vertex, the axis of symmetry, and at least two other points.

(a) $y = x^2 - 6x + 8$

(c) $y = -3x^2 - 6x + 1$

(b) $y = 2x^2 + 1$

(d) $y = -x^2 + 4x - 5$

- (3) A bus service is currently transporting 100 passengers at a cost of \$2.00 per person. The owner estimates that for every 20¢ increase in price there will be 5 fewer passengers. What price should be charged to maximize revenue?
- (4) Two integers have a sum of 13. The sum of their squares is 125. What are the numbers?
- (5) The difference of 2 numbers is 14. Find the numbers if their product is to be a minimum and also find this product.
- (6) A rectangle has a length that is 5 less than 3 times the width. Find the dimensions of the rectangle if the area is 28 cm².

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Answers

(2) (a) Vertex: $(3, -1)$, Axis of symmetry is $x = 3$

(b) Vertex: $(0, 1)$, Axis of symmetry is $x = 0$

(c) Vertex: $(-1, 4)$, Axis of symmetry is $x = -1$

(d) Vertex: $(2, -1)$, Axis of symmetry is $x = 2$

(3) \$3.00 (5 increases of 20 cents)

(4) 11 and 2

(5) -7 and 7 , Product -49

(6) 4 by 7