

Name:

ANSWERS!

Class:



Communication



Successful Partnership



Encouragement



Solving Problem Together



Collaboration

For each of the below (i) state the vertex, and (ii) re-write in factored form.

Question 01

$$a(x) = 5(x + 3)^2 - 5$$

vertex  $(-3, -5)$

$$5(x^2 + 6x + 9) - 5$$

$$5x^2 + 30x + 45 - 5$$

$$5x^2 + 30x + 40$$

$$5(x^2 + 6x + 8)$$

both pos  
1 8 8  
2 4

$$5(x+2)(x+4)$$

Question 02

$$b(x) = -2(x + 1)^2 + 18$$

vertex  $(-1, 18)$

$$-2(x^2 + 2x + 1) + 18$$

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

$$-2x^2 - 4x + 16$$

$$-2(x^2 + 2x - 8)$$

big pos  
-1 8 8  
-2 4

$$-2(x-2)(x+4)$$

Question 03

$$c(x) = -3(x - 2)^2 + 27$$

vertex  $(2, 27)$

$$-3(x^2 - 4x + 4) + 27$$

$$-3x^2 + 12x - 12 + 27$$

$$-3x^2 + 12x + 15$$

$$-3(x^2 - 4x - 5)$$

big Neg  
1 -5 -5

$$-3(x+1)(x-5)$$

Question 04

$$d(x) = 5(x - 7)^2 - 45$$

vertex (7, -45)

$$5(x^2 - 14x + 49) - 45$$

$$5x^2 - 70x + 245 - 45$$

$$5x^2 - 70x + 200$$

$$5(x^2 - 14x + 40)$$

Both Neg ↑ same

	40	-40
-1		
-2		-20
-4		-10
-5		-8

$$5(x-4)(x-10)$$

Question 05

$$e(x) = -(x - 2)^2 + 25$$

vertex (2, 25)

$$-(x^2 - 4x + 4) + 25$$

$$-x^2 + 4x - 4 + 25$$

$$-x^2 + 4x + 21$$

$$-(x^2 - 4x - 21)$$

Big Neg ↑ different

	-21	-21
1		
3		-7

$$-(x+3)(x-7)$$

Question 06

$$f(x) = -2(x + 2)^2 + 18$$

vertex (-2, 18)

$$-2(x^2 + 4x + 4) + 18$$

$$-2x^2 - 8x - 8 + 18$$

$$-2x^2 - 8x + 10$$

$$-2(x^2 + 4x - 5)$$

Big Pos ↑ different

	-5	5
-1		
5		

$$-2(x-1)(x+5)$$

Question 07

$$g(x) = -4(x - 10)^2 + 16$$

vertex (10, 16)

$$-4(x^2 - 20x + 100) + 16$$

$$-4x^2 + 80x - 400 + 16$$

$$-4x^2 + 80x - 384$$

$$-4(x^2 - 20x + 96)$$

Both Neg ↑ same

	96	96
1		
2	6	48
3	8	32
4	12	24

$$-4(x-8)(x-12)$$