Bellwork Wednesday, April 12, 2017 ALG 2A

Find the maximum value or minimum value of each function.

1. $y = -.25x^2 + 13x - 17$

2. $f(x) = 4(x-7)^2 + 31$

Factor each completely.

3. $16x^3 - 32x^2 - 84x$

4. $28x^5 - 343x^3$

5. $3x^4 - 15x^2 + 12$

6. $2x^4 - 15x^2 - 27$

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ALG 2A Bellwork 4-12-17 **Answers**

The max/min value of a quadratic is the y-coordinate of the vertex. This is what the function equals at either its highest or lowest point.

① $y = -.25x^2 + 13x - 17$

LOS: $x = \frac{-13}{2(-.25)} = 26$

Vertex: $(26, 152)$

$-.25(26)^2 + 13(26) - 17$

parabola opens down., therefore,

Max value of this function is 152

② $y = 4(x-7)^2 + 31 \rightarrow$ Vertex is $(7, 31)$

this parabola opens up, therefore, the minimum value of this function is 31

③ $16x^3 - 32x^2 - 84x$

$= 4x(4x^2 - 8x - 21)$

-84, -14, 6, -8

	$2x$	-7
$2x$	$4x^2$	$-14x$
$+3$	$+6x$	-21

$= 4x(2x-7)(2x+3)$

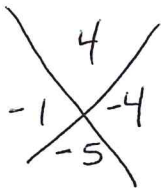
④ $28x^5 - 343x^3$

$= 7x^3(4x^2 - 49)$

$= 7x^3(2x \pm 7)$

(5) $3x^4 - 15x^2 + 12$

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

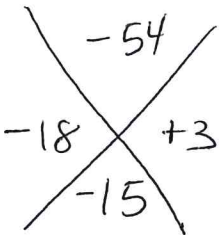


	x^2	-1
x^2	x^4	$-x^2$
-4	$-4x^2$	$+4$

$= 3(x^2-1)(x^2-4)$

$= 3(x\pm1)(x\pm2)$

(6) $2x^4 - 15x^2 - 27$



	x^2	-9
$2x^2$	$2x^4$	$-18x^2$
$+3$	$+3x^2$	-27

$= (x^2-9)(2x^2+3)$

$= (x\pm3)(2x^2+3)$