

I. Completely factor the following polynomials. Some problems require two steps.

(a) $81 - 16x^2$	(b) $-30x^6 + 5x^2$	(c) $25x^{10} - 36$	(d) $12x - 27x^3$
(e) $5x^4 - 75x^3 + 220x^2$	(f) $20x^2 - 23x + 6$	(g) $20x^3 + 8x^2 + 45x + 18$	
(h) $12x^2 - x - 6$	(i) $18x^3 - 30x^2 - 21x + 35$	(j) $42x^3y^3 - 48x^3y - 36x^2y^2$	

II. Solve the quadratic equations by factoring (a) and using the Quadratic Formula (b).

III. Simplify the following expressions using order of operations. Show all steps and work vertically.

(a) $4x^2 - 7x - 15 = 0$	(b) $x^2 - 12x + 16 = 0$	(a) $\frac{-6^2(5 \cdot 6 - 2^4)}{2 \cdot 9} - (5^2 - 8 \cdot 3)$	(b) $-5(-2x)^4 - 4(5x)^2$
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IV. Graph the following quadratic function using the 5-point method.

$$y = -x^2 + 4x + 12$$

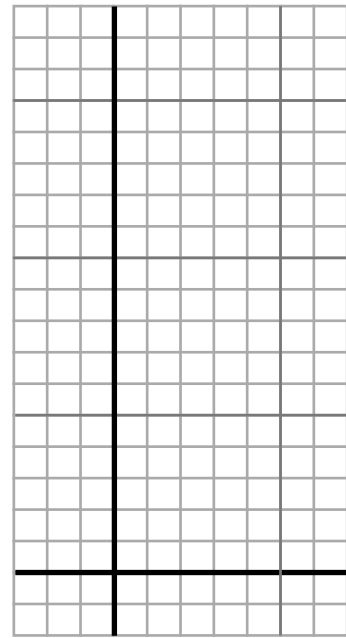
vertex:

x-intercepts:

LOS:

y-intercept:

ref. pt.:



V. Solve the following absolute value equations.

(a) $ x - 9 = 17$	(b) $-3 3x - 5 + 5 = -7$	(c) $ x + 12 = -6$
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VI. Find the following linear functions. Express in slope-intercept form.

(a) Parallel to $-4x + 3y = -12$ and passing through $(-20, 5)$.	(b) Perpendicular to $y = 5x - 8$ and passing through $(10, -2)$.	(c) Perpendicular to $12x + 8y = 16$ and passing through $(-15, -4)$.
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