

Math 2 – Honors
Unit 2 – Quadratic Functions
Unit 2 Test Review

Name _____
 Date _____ Pd _____

$x^2 + 7x + 27$

➤ Perform the indicated operation:

1. $3(-5x^2 + 2x + 1) + (16x^2 + 5x) + 4(6 - x)$ $-15x^2 + 6x + 3 + 16x^2 + 5x + 24 - 4x$	2. $(3x^2 - 5x + 1) + (2x^2 + 6x + 4) - (6x^2 + 2)$ $1x^2 - 11x + 7$
3. $3x^4(4x^4 - x^3 + 2x)$ $12x^8 - 3x^7 + 6x^5$	4. $(2x - 5)(x + 3)$ $2x^2 + 6x - 5x - 15 = 2x^2 + x - 15$
5. $(4x - 3y)(4x - 3y)$ $16x^2 - 24xy + 9y^2$	6. $(x + 9)(x - 9)$ $x^2 - 81$
7. $(2x + 3)(4x^2 - 6x + 9)$ $8x^3 - 12x^2 + 18x + 12x^2 - 18x + 27$ $8x^3 + 27$	8. $(3x - 5)(2x + 1)(x - 3)$ $6x^3 - 7x^2 - 5x - 18x^2 + 21x + 15$ $6x^3 - 13x^2 + 16x + 15$ $(6x^2 - 7x - 5)(x - 3)(x^3 - 25x^2 + 16x + 15)$

➤ Factor Completely:

9. $36x^4 - 24x^3$ $12x^3(3x - 2)$	10. $2x^3 + 5x^2 - 18x - 45$ $x^2(2x + 5) - 9(2x + 5)$ $(x - 3)(x + 3)(2x + 5)$
11. $25x^2 - 49$ $(5x - 7)(5x + 7)$	12. $x^2 - 4x - 12$ $(x - 6)(x + 2)$
13. $2x^2y - 4xy - 30y$ $2y(x^2 - 2x - 15)$ $2y(x - 5)(x + 3)$	14. $3x^2 - 13x - 10$ $x^2 - 13x - 30$ $(x - 15/3)(x + 2/3)$ $(x - 5)(3x + 2)$
15. $25x^2 + 64$ Prime	16. $3x^4 - 3$ $3(x^4 - 1)$ $3(x - 1)(x + 1)(x^2 + 1)$

➤ Solve by Factoring:

17. $(3x + 7)(2x - 5) = 0$ $x = -7/3, x = 5/2$	18. $2x^2 - 5x = 12$ $2x^2 - 5x - 12$ $(x - 4)(2x + 3)$ $x = -3/2, 4$
19. $x^2 + 2x - 8 = 0$ $(x + 4)(x - 2) = 0$ $x = -4, 2$	20. $2x + 35 = x^2$ $x^2 - 2x - 35 = 0$ $(x - 7)(x + 5) = 0$ $x = -5, 7$
21. $4x^3 - 25x = 0$ $x(4x^2 - 25) = 0$ $x(2x - 5)(2x + 5) = 0$ $x(4x^2 - 25) = 0$ $x = -5/2, 0, 5/2$	22. $4x^2 - x = 0$ $x(4x - 1) = 0$ $x = 0, 1/4$

➤ Write the equation of the parabola in x - intercept form:

23. x - intercepts: $(-3, 0)$ & $(-1, 0)$ and vertex $(-2, -1)$ $y = (x + 3)(x + 1)$	24. x - intercepts: $(3, 0)$ & $(2, 0)$ and a point $(5, -18)$ $y = (x - 3)(x - 2) - 24$
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➤ Write the equations from #23-24 in *vertex form*:

25. $y = (x + 2)^2 - 1$	26. $y = (x - 2.5)^2 - 24.25$
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$$8) (3x-5)(2x+1)(x-3)$$

$$6x^2 + 3x - 10x - 5$$
$$(6x^2 - 7x - 5)(x-3)$$

$$\begin{array}{r} 6x^3 - 7x^2 - 5x \\ + \quad -18x^2 + 21x + 15 \\ \hline 6x^3 - 25x^2 + 16x + 15 \end{array}$$

2 terms: GCF, Diff of Sq.

3: GCF, Factor, Slide + Divide

$$11) \sqrt{25x^2} - \sqrt{49}$$
$$(5x + 7)(5x - 7)$$

$$13) 2x^2y - 4xy - 30y$$
$$2y(x^2 - 2x - 15)$$

$$2y(x-5)(x+3)$$

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➤ Complete the missing information:

27. $y = (x + 4)^2 - 4$ $x^2 + 8x + 16$
 Vertex $(-4, -4)$ $x^2 + 8x + 12$

Axis of Symmetry: $x = -4$ $(x+2)(x+6)$

x-intercepts: $(-6, 0)(-2, 0)$
 $\swarrow \quad \searrow$
 $-2 \quad -6$

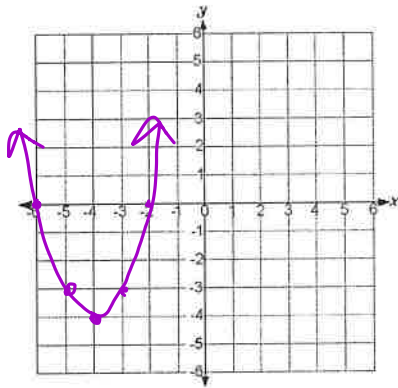
y-intercept: $(0, 12)$

Domain: $(-\infty, \infty)$

Range: $[-4, \infty)$

X - **intercept** form of the equation:

$y = (x+6)(x+2)$



28. $y = -2(x + 3)(x + 1)$

Vertex $(-2, 2)$

Axis of Symmetry: $x = -2$

x-intercepts: $(-3, 0)(-1, 0)$

y-intercept: $(0, -6)$

Domain: $(-\infty, \infty)$

Range: $(-\infty, 2]$

Vertex form of the equation:

$y = -2(x+2)^2 + 2$

