Chapter 10.1-10.4 Test Review

Name: KEY

Section 10.1: *Adding and Subtracting Polynomials*

Find the sum or difference.

1. $(x^2 + 2x + 1) + (4x^2 + 5x + 3)$

$x^2 + 4x^2 + 2x + 5x + 1 + 3$

$\boxed{5x^2 + 7x + 4}$

2. $(3x^2 + 5x + 4) + (x^2 + 2x + 1)$

$3x^2 + x^2 + 5x + 2x + 4 + 1$

$\boxed{2x^2 + 3x + 3}$

3. $(5x + 3x^2 + 8) + (2 + 3x - 6x^2)$

$3x^2 - 6x^2 - 5x + 3x + 8 + 2$

$\boxed{-3x^2 - 2x + 10}$

4. $(8x^2 + 6x + 3) + (5x^3 + 4x^2 + 3x + 2)$

$-5x^3 + 8x^2 + -4x^2 + 6x + -3x + 3 + 2$

$\boxed{-5x^3 + 4x^2 + 3x + 5}$

Section 10.2: *Multiplying Polynomials*

Find the product.

5. $2x(3x - 5)$

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

$\boxed{6x^2 - 10x}$

6. $(x + 3)(x + 2)$

$x(x) + x(2) + 3(x) + 3(2)$

$x^2 + 2x + 3x + 6$

$\boxed{x^2 + 5x + 6}$

7. $(2x + 1)(x + 3)$

$2x(x) + 2x(3) + 1(x) + 1(3)$

$2x^2 + 6x + x + 3$

$\boxed{2x^2 + 7x + 3}$

8. $(4x + 3)(2x - 5)$

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

$8x^2 - 20x + 6x - 15$

$\boxed{8x^2 - 14x - 15}$

Section 10.3: *Multiplying Special Polynomials*

Find the product.

9. $(x-8)(x+8)$

$x(x)+x(8)-8(x)-8(8)$

$x^2+8x-8x-64$

$\boxed{x^2-64}$

10. $(x+5)^2$ $(x+5)(x+5)$

$x(x)+x(5)+5(x)+5(5)$

$x^2+5x+5x+25$

$\boxed{x^2+10x+25}$

11. $(2y-7)^2$ $(2y-7)(2y-7)$

$2y(2y)+2y(-7)-7(2y)-7(-7)$

$4y^2-14y-14y+49$

$\boxed{4y^2-28y+49}$

12. $(2y-9)(2y+9)$

$2y(2y)+2y(9)-9(2y)-9(9)$

$4y^2+18y-18y-81$

$\boxed{4y^2-81}$

Section 10.4: *Solving Quadratic Equations in Factored Form.*

Solve the equation.

13. $(3x+4)(x-2)=0$

$3x+4=0$ $x-2=0$

$3x=-4$ $\boxed{x=2}$

$\boxed{x=\frac{-4}{3}}$

14. $(x+3)^2=0$

$x+3=0$

$\boxed{x=-3}$

15. $3(x+3)(x-1.5)=0$

$x+3=0$ $x-1.5=0$

$\boxed{x=-3}$ $\boxed{x=1.5}$

16. $x(3x+5)(2x-1)=0$

$\boxed{x=0}$ $3x+5=0$ $2x-1=0$

$3x=-5$ $2x=1$

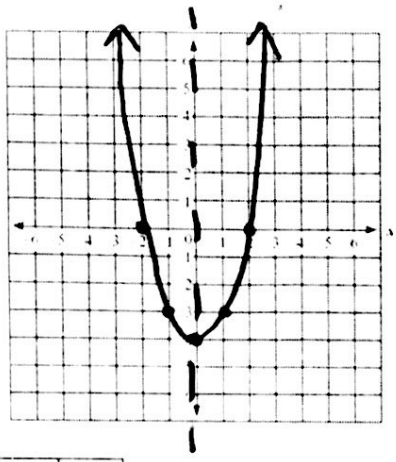
$\boxed{x=\frac{-5}{3}}$ $\boxed{x=\frac{1}{2}}$

Graph the following quadratics in factored form. Identify the graph's x-intercepts, axis of symmetry (AOS), vertex, and tell whether the graph opens up or down.

17. $y = (x + 2)(x - 2)$

$x+2=0$ $x-2=0$

$x=-2$ $x=2$



x-int: $-2, 2$

AOS: $x=0$

vertex: $(0,-4)$

opens: up

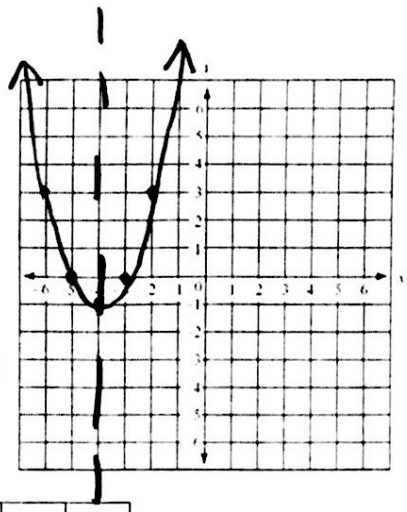
x	-2	-1	0	1	2
y	0	-3	-4	-3	0

$x = \frac{-2+2}{2} = \frac{0}{2} = 0$

18. $y = (x + 5)(x + 3)$

$x+5=0$ $x+3=0$

$x=-5$ $x=-3$



x-int: $-3, -5$

AOS: $x=-4$

vertex: $(-4,-1)$

opens: up

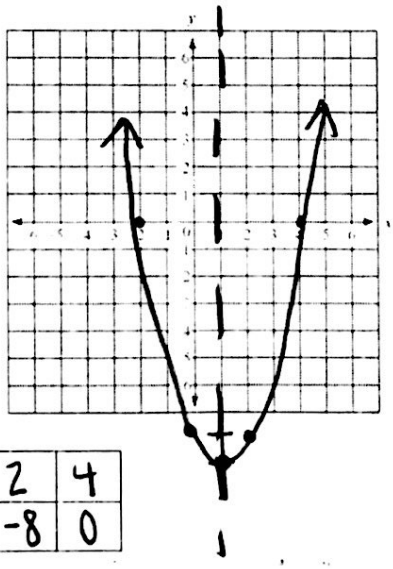
x	-6	-5	-4	-3	-2
y	3	0	-1	0	3

$x = \frac{-3+-5}{2} = \frac{-8}{2} = -4$

19. $y = (x - 4)(x + 2)$

$x-4=0$ $x+2=0$

$x=4$ $x=-2$



x-int: $-2, 4$

AOS: $x=1$

vertex: $(1,-9)$

opens: up

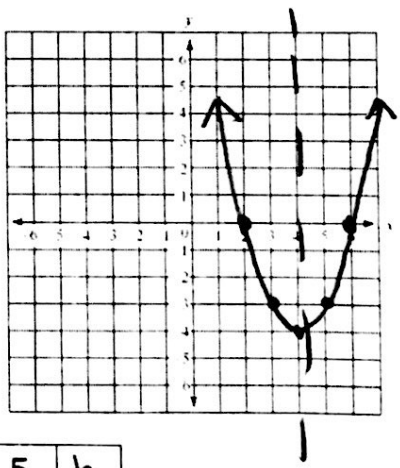
x	-2	0	1	2	4
y	0	-8	-9	-8	0

$x = \frac{-2+4}{2} = \frac{2}{2} = 1$

20. $y = (x - 2)(x - 6)$

$x-2=0$ $x-6=0$

$x=2$ $x=6$



x-int: $2, 6$

AOS: $x=4$

vertex: $(4,-4)$

opens: up

x	2	3	4	5	6
y	0	-3	-4	-3	0

$x = \frac{2+6}{2} = \frac{8}{2} = 4$