

**2013-2014 Algebra 2: Ch 6 Common Assessment Study Guide**

**Multiple Choice**

Identify the choice that best completes the statement or answers the question.

*Simplify the given expression.*

1.  $(-5x^2 - 8x + 15) - (19x^2 + 13x - 6)$ 
  - a.  $-24x^2 - 21x + 9$
  - b.  $-24x^2 - 21x + 21$
  - c.  $-24x^2 - 5x + 21$
  - d.  $-24x^2 - 27x + 9$
2.  $(-12x^2 - 11x + 20) - (17x^2 + 19x - 8)$ 
  - a.  $-29x^2 - 28x + 12$
  - b.  $-29x^2 - 30x + 28$
  - c.  $-29x^2 - 30x + 12$
  - d.  $-29x^2 - 8x + 28$
3.  $-8xy(3xy^3 - 10xy + 11y^2)$ 
  - a.  $-24x^2y^4 + 80x^2y^2 - 88xy^3$
  - b.  $-24x^2y^4 - 10xy + 11y^2$
  - c.  $-24x^2y^4 - 10x^2y^2 + 11x^2y^3$
  - d.  $-24x^2y^4 + 80xy + 88y^2$
4.  $-5xy(5xy^3 - 8xy + 10y^2)$ 
  - a.  $-25x^2y^4 + 40xy + 50y^2$
  - b.  $-25x^2y^4 + 40x^2y^2 - 50xy^3$
  - c.  $-25x^2y^4 - 8xy + 10y^2$
  - d.  $-25x^2y^4 - 8x^2y^2 + 10x^2y^3$
5. Find  $p(-2)$  and  $p(6)$  for the function  $p(x) = 3x^4 + 8x^3 - 9x^2 + 10x + 13$ .
  - a. -29; 5,315
  - b. -72; 5,352
  - c. -59; 5,365
  - d. -131; 2,125
6. Find  $p(-5)$  and  $p(5)$  for the function  $p(x) = 9x^4 + 9x^3 - 2x^2 + 13x + 5$ .
  - a. 4,468; 6,718
  - b. -2,360; 2,270
  - c. 4,390; 6,770
  - d. 4,385; 6,765
7.  $(5x^2 - 25x - 6) \div (x - 4)$ 
  - a. quotient  $5x - 5$  and remainder -14
  - b. quotient  $5x + 5$  and remainder 14
  - c. quotient  $5x - 5$  and remainder -26
  - d. quotient  $5x - 25$  and remainder 4
8.  $(4x^2 - 37x - 10) \div (x - 8)$ 
  - a. quotient  $4x - 5$  and remainder -50
  - b. quotient  $4x + 5$  and remainder 30
  - c. quotient  $4x - 37$  and remainder 8
  - d. quotient  $4x - 5$  and remainder -30

*Simplify the expression using long division.*

*Factor the polynomial completely.*

9.  $6x^4y - 12x^2y^2$ 
  - a.  $6x^2y(x^2y - 2y^2)$
  - b.  $x^2y(6x^2 - 12y)$
  - c.  $6x^2y(x^2 - 2y)$
  - d.  $6(x^4y - 2x^2y^2)$
10.  $7x^4y - 14x^2y^2$ 
  - a.  $x^2y(7x^2 - 14y)$
  - b.  $7x^2(x^2y - 2y^2)$
  - c.  $7x^2y(x^2 - 2y)$
  - d.  $7(x^4y - 2x^2y^2)$
11.  $48x^3 - 80x^2 + 33x - 55$ 
  - a.  $(16x^2 + 11)(3x - 5)$
  - b.  $(48x^3 - 80x^2) + (33x - 55)$
  - c.  $16x^2(3x - 5) - 33x + 55$
  - d.  $16x^2(3x - 5) - 11(3x - 5)$
12.  $30x^3 - 50x^2 + 9x - 15$ 
  - a.  $10x^2(3x - 5) - 3(3x - 5)$
  - b.  $10x^2(3x - 5) - 9x + 15$
  - c.  $(30x^3 - 50x^2) + (9x - 15)$
  - d.  $(10x^2 + 3)(3x - 5)$
13.  $5x^2 + 26x - 63$ 
  - a.  $(5x + 9)(x + 7)$
  - b.  $(5x - 9)(x - 7)$
  - c.  $(5x - 9)(x + 7)$
  - d.  $(5x + 9)(x - 7)$
14.  $7x^2 - 61x - 18$ 
  - a.  $(x - 9)(7x - 2)$
  - b.  $(x + 9)(7x - 2)$
  - c.  $(x - 9)(7x + 2)$
  - d.  $(x + 9)(7x + 2)$
15. Use the Remainder Theorem to find  $P(4)$  for the function  $P(x) = 10x^4 - 7x^2 + 5x - 8$ .
  - a. 2,460
  - b. 540
  - c. 2,684
  - d. 2,476
16. Use the Remainder Theorem to find  $P(3)$  for the function  $P(x) = 9x^4 - 12x^2 + 2x - 6$ .
  - a. 633
  - b. 621
  - c. 135
  - d. 837
17. Simplify  $(2x + 3)^4$ 
  - a.  $16x^4 + 32x^3 + 96x^2 + 216x + 81$
  - b.  $16x^4 + 81$
  - c.  $16x^4 + 64x^3 + 126x^2 + 32x + 81$
  - d.  $16x^4 + 96x^3 + 216x^2 + 216x + 81$
18. Simplify  $(2x - y)^3$ 
  - a.  $8x^3 - 16x^2y + 32xy^2 - y^3$
  - b.  $8x^3 - 12x^2y + 6xy^2 - y^3$
  - c.  $8x^3 - 32x^2y + 64xy^2 - y^3$
  - d.  $8x^3 - y^3$
19. Write a quadratic equation with the given roots: -9 and 4
  - a.  $x^2 - 5x + 36 = 0$
  - b.  $x^2 + 13x + 36 = 0$
  - c.  $x^2 - 13x + 36 = 0$
  - d.  $x^2 + 5x - 36 = 0$

20. Write a quadratic equation with the given roots:  $-6$  and  $-2$
- $x^2 - 8x - 12 = 0$
  - $x^2 - 4x - 12 = 0$
  - $x^2 + 8x + 12 = 0$
  - $x^2 + 4x - 12 = 0$
21. Solve the given equation. State the number and type of roots.  $x^2 + 4x - 12 = 0$
- The equation has two real roots,  $-2$  and  $6$ .
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  - The equation has two real roots,  $-2$  and  $-6$ .
  - The equation has two real roots,  $2$  and  $-6$ .
22. Solve the given equation. State the number and type of roots.  $x^2 - 2x - 48 = 0$
- The equation has two real roots,  $8$  and  $6$ .
  - The equation has two real roots,  $8$  and  $-6$ .
  - The equation has two real roots,  $-8$  and  $6$ .
  - The equation has two real roots,  $-8$  and  $-6$ .

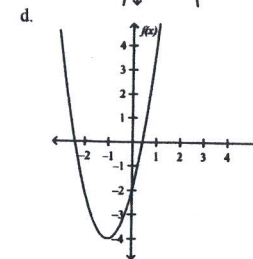
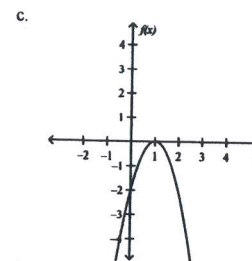
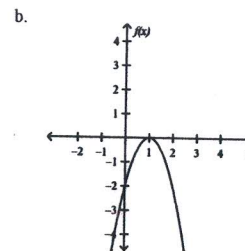
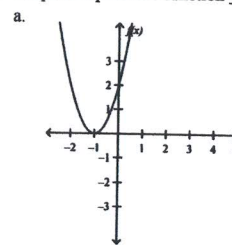
Solve the equation by factoring.

23.  $2x^2 + 5x - 18 = 0$
- $\{-4, 9\}$
  - $\{-4, -\frac{9}{2}\}$
  - $\{2, 9\}$
  - $\{-\frac{9}{2}, 2\}$
24.  $4x^2 + 10x - 6 = 0$
- $\{\frac{1}{2}, 12\}$
  - $\{-3, \frac{1}{2}\}$
  - $\{-2, 12\}$
  - $\{-2, -3\}$

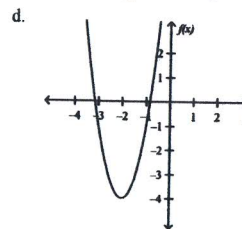
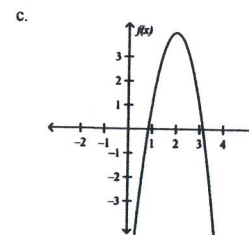
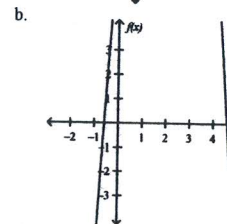
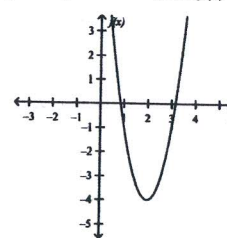
Simplify.

25.  $\frac{2}{6 + 13i}$
- $\frac{6}{205} - \frac{13}{205}i$
  - $\frac{12}{205} - \frac{26}{205}i$
  - $\frac{12}{133} + \frac{26}{133}i$
  - $\frac{12}{205} + \frac{26}{205}i$
26.  $\frac{8}{8 + 13i}$
- $\frac{64}{233} - \frac{104}{233}i$
  - $\frac{64}{105} + \frac{104}{105}i$
  - $\frac{8}{233} - \frac{13}{233}i$
  - $\frac{64}{233} + \frac{104}{233}i$

27. Graph the quadratic function  $f(x) = 2x^2 + 4x - 2$ .



28. Graph the quadratic function  $f(x) = -3x^2 + 12x - 8$ .



Solve each system of equations by using substitution.

29.  $5x + 9y = 16$   
 $4x - 5y = 25$   
 a. (5, 1) c. (4, -1)  
 b. (5, -1) d. (-1, 5)
30.  $9x + 8y = 2$   
 $5x - 6y = 22$   
 a. (2, -2) c. (2, 0)  
 b. (-2, 2) d. (1, -2)
31. Simplify  $\frac{\sqrt{175}}{\sqrt{6}}$   
 a.  $\frac{5\sqrt{7}}{\sqrt{6}}$  c.  $\frac{5\sqrt{42}}{6}$   
 b.  $5\sqrt{42}$  d.  $5\sqrt{7}$
32. Simplify  $\frac{\sqrt{128}}{\sqrt{11}}$   
 a.  $\frac{8\sqrt{22}}{11}$  c.  $\frac{8\sqrt{2}}{\sqrt{11}}$   
 b.  $8\sqrt{2}$  d.  $\frac{8\sqrt{13}}{11}$
33.  $|2x + 1| > 5$   
 a.  $x < -3 \cup x > -2$  c.  $x < -3 \cup x > 2$   
 b.  $x < 2 \cup x < 3$  d. none
34.  $\frac{|3x - 6|}{2} \leq 12$   
 a.  $-6 \geq x \geq 10$  c.  $x \leq -6$  and  $x \geq 10$   
 b.  $-6 \leq x \leq 10$  d. none

Simplify the given expression. Assume that no variable equals 0.

35.  $(17x^{-8}y^{11})(-6xy^5)$   
 a.  $-102x^{-7}y^{16}$  c.  $\frac{-102y^{16}}{x^7}$   
 b.  $\frac{11y^{16}}{x^7}$  d.  $-102x^{-9}y^{-48}$

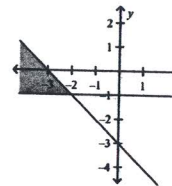
36.  $(22x^{-12}y^{10})(-11xy^{10})$

- a.  $-242x^{-11}y^{20}$  c.  $\frac{-242y^{20}}{x^{11}}$   
 b.  $\frac{11y^{20}}{x^{11}}$  d.  $-242x^{-13}y^{-120}$

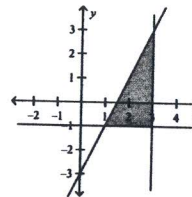
Given below are some inequalities. Plot the feasible region graphically.

37.  $y \geq -1$   
 $x \leq 3$   
 $y \leq 2x - 3$

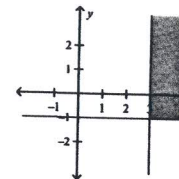
a.



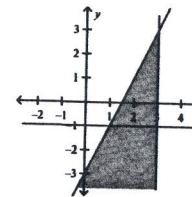
b.



c.

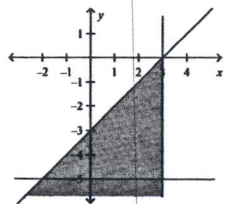


d.

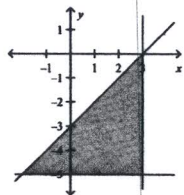


38.  $y \geq -5$   
 $x \leq 3$   
 $y \leq x - 3$

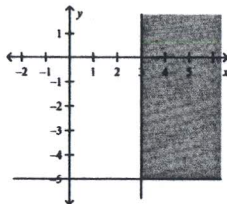
a.



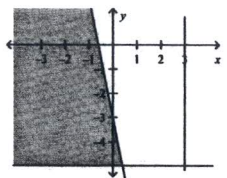
b.



c.



d.



**Problem**

39. Place an X on the method that should be used to factor each polynomial.

Polynomial	Difference of Squares	Sum of Cubes	Difference of Cubes	Grouping	None
$f(x) = a^2 + 27$					
$f(x) = x^2 - x^2 - 8x + 8$					
$f(x) = 64 - z^9$					
$f(x) = 4x^2 - 8y^2$					
$f(x) = y^3 + 7y^2 + 2y + 14$					

40. Place an X on the method that should be used to factor each polynomial.

Polynomial	Difference of Squares	Sum of Cubes	Difference of Cubes	Grouping	None
$f(x) = 4x^2 + x^2 - 14x - 4$					
$f(x) = 49x^2 + 16$					
$f(x) = 25x^2 - 49y^2$					
$f(x) = 8x^3 - 125y^3$					
$f(x) = x^6 - 1$					