

**OA.7:** I can solve quadratic equations by factoring, using the Quadratic Formula, graphing, or inverse operations.

**Solve the equation by factoring.**

1)  $x^2 + 4x - 60 = 0$

**Solve the equation using the quadratic formula.**

2)  $7x^2 = -12x - 1$

**OA.8:** I can solve cubic and absolute value equations.

**Use a method of your choice to solve the equation.**

3)  $x^3 - 9x^2 + 27x - 33 = 0$

A)  $x = 3$

B)  $x = 1.18$

C)  $x = -1.18$

D)  $x = 4.82$

4)  $|x + 4| = |x + 6|$

*(1 pt)* **Solve the equation graphically.**

5)  $|5x - 7| = 1$

*(1 pt)* **Solve for x.**

6)  $x + 2 = \frac{10}{x}$

**OA.9:** Solve and graph absolute value inequalities in one variable.

*(2 points; 1 pt. for work and 1 pt. for correct answer)* **Solve the inequality algebraically or graphically. Write the solution in interval notation.**

7)  $|x + 2| \leq 6$

8) (1 point) Solve the inequality algebraically or graphically. Write the solution in interval notation.

$$|1 - 2x| - 2 < 4$$

A)  $\left(-\infty, -\frac{5}{2}\right)$

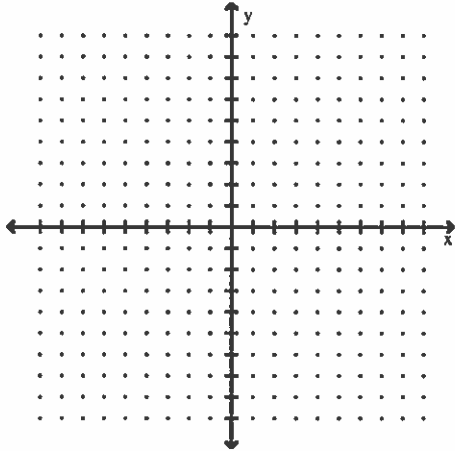
C)  $\left(-\frac{5}{2}, \frac{7}{2}\right)$

B)  $\left(-\infty, -\frac{5}{2}\right) \cup \left(\frac{7}{2}, \infty\right)$

D)  $\left(-\frac{5}{2}, \infty\right)$

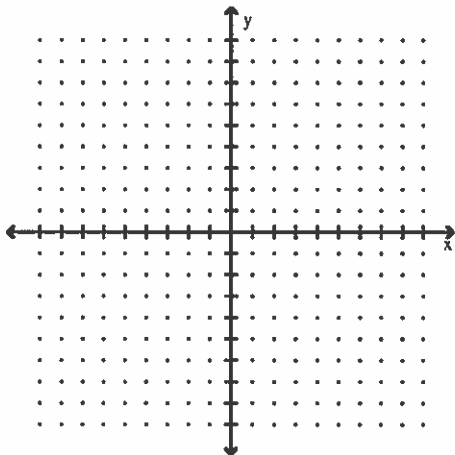
(2 pts) Solve the inequality graphically. The graph must be accurate!

9)  $x^2 - 3x - 4 > 0$



Solve the inequality graphically.

10)  $x^2 + 8 \leq -4x$



**Precalc Practice Test Prep for Polynomials****Multiple Choice**

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

**What is the degree of each monomial?**

- \_\_\_\_\_ 1.  $7m^6n^5$   
a. 5                      b. 11                      c. 6                      d. 7
- \_\_\_\_\_ 2.  $-9$   
a.  $-8$                       b. 0                      c.  $-10$                       d.  $-9$

**Write the polynomial in standard form. Then name the polynomial based on its degree and number of terms.**

- \_\_\_\_\_ 3.  $7g - 8g^3 + 5g^2 - 2$   
a.  $8g^3 - 5g^2 + 7g - 2$ ; cubic polynomial  
b.  $-2 + 7g + 5g^2 - 8g^3$ ; cubic binomial  
c.  $5g^3 - 8g^2 + 7g - 2$ ; quadratic binomial  
d.  $-8g^3 + 5g^2 + 7g - 2$ ; cubic trinomial
- \_\_\_\_\_ 4. A biologist studied the populations of white-sided jackrabbits and black-tailed jackrabbits over a 5-year period. The biologist modeled the populations, in thousands, with the following polynomials where  $x$  is time, in years.

White-sided jackrabbits:  $5.5x^2 - 9.2x + 6.9$

Black-tailed jackrabbits:  $5.5x^2 + 9.9x + 1.3$

**What polynomial models the total number of white-sided and black-tailed jackrabbits?**

- a.  $11x^2 + 0.7x + 8.2$                       c.  $11x^2 - 0.7x - 8.2$   
b.  $11x^2 - 0.7x + 8.2$                       d.  $-11x^2 + 0.7x - 8.2$

**Simplify the difference.**

- \_\_\_\_\_ 5.  $(-7x - 5x^4 + 5) - (-7x^4 - 5 - 9x)$   
a.  $2x^4 + 2x + 8$                       c.  $-14x^4 - 10x + 10$   
b.  $-14x^4 + 10x + 10$                       d.  $2x^4 + 2x + 10$

**Factor the polynomial.**

- \_\_\_\_\_ 6.  $42w^{10} + 24w^6$   
a.  $w^6(42w^4 + 24)$                       c.  $6(7w^{10} + 4w^6)$   
b.  $6w^6(7w^4 + 4)$                       d.  $6w^5(7w^5 + 4w)$

What is the factored form of the expression?

- \_\_\_\_\_ 7.  $15x^2 - 16xy + 4y^2$
- a.  $(3x - 2y)(5x + 2y)$                       c.  $(3x + 2y)(5x - 2y)$   
b.  $(3x - 2y)(5x - 2y)$                       d.  $(3x + 2y)(5x + 2y)$

What is the factored form of the expression?

- \_\_\_\_\_ 8.  $15g^2 - 19gh - 56h^2$
- a.  $(3g - 8h)(5g + 7h)$                       c.  $(3g + 8)(5g + 7h^2)$   
b.  $(3g + 8h)(5g - 7h)$                       d.  $(3g - 8)(5g + 7)$
- \_\_\_\_\_ 9. The area of a rectangular pool is given by the trinomial  $8y^2 + 4y - 12$ . What are the possible dimensions of the pool? Use factoring.
- a.  $-2y - 2$  and  $-4y - 6$                       c.  $2y - 2$  and  $4y + 6$   
b.  $2y - 2$  and  $4y + 6$                       d.  $2y + 2$  and  $4y - 6$

What is the factored form of the expression?

- \_\_\_\_\_ 10.  $60y^2 - 51y - 72$
- a.  $(5y + 8)(4y - 3)$                       c.  $3(5y + 8)(4y + 3)$   
b.  $3(5y - 8)(4y + 3)$                       d.  $(5y - 8)(12y + 9)$

What value completes the square for the expression?

- \_\_\_\_\_ 11.  $x^2 - 18x$
- a. 9    c. 81  
b. -9    d. -81

Solve the quadratic equation by completing the square.

- \_\_\_\_\_ 12.  $-3x^2 + 7x = -5$
- a.  $\frac{7}{6} \pm \frac{\sqrt{109}}{6}$                                       c.  $\frac{7}{3} \pm \frac{\sqrt{67}}{3}$   
b.  $-\frac{7}{3} \pm \frac{\sqrt{109}}{3}$                                     d.  $-\frac{7}{6} \pm \frac{\sqrt{22}}{6}$

Short Answer

13. Factor  $-27u^3 + 343b^3$

## Answer Key

Testname: CH P PART 3 13-14

1)  $x = -10$  or  $x = 6$

2)  $x = \frac{-6 + \sqrt{29}}{7}$  or  $x = \frac{-6 - \sqrt{29}}{7}$

3) D

4)  $x = -5$

5)  $x = \frac{6}{5}$  or  $x = \frac{8}{5}$

6)  $x = -4.32$  or  $x = 2.32$

7)  $[-8, 4]$

8) C

9)  $(-1, 4)$

10) No solution

## Precalc Practice Test Prep for Polynomials

### Answer Section

#### MULTIPLE CHOICE

1. ANS: B                   PTS: 1                   DIF: L3  
REF: 8-1 Adding and Subtracting Polynomials  
OBJ: 8-1.1 To classify, add, and subtract polynomials                   NAT: A.3.c| A.3.e  
TOP: 8-1 Problem 1 Finding the Degree of a Monomial                   KEY: monomial | degree of a monomial  
DOK: DOK 1
2. ANS: B                   PTS: 1                   DIF: L2  
REF: 8-1 Adding and Subtracting Polynomials  
OBJ: 8-1.1 To classify, add, and subtract polynomials                   NAT: A.3.c| A.3.e  
TOP: 8-1 Problem 1 Finding the Degree of a Monomial                   KEY: monomial | degree of a monomial  
DOK: DOK 1
3. ANS: D                   PTS: 1                   DIF: L3  
REF: 8-1 Adding and Subtracting Polynomials  
OBJ: 8-1.1 To classify, add, and subtract polynomials                   NAT: A.3.c| A.3.e  
TOP: 8-1 Problem 3 Classifying Polynomials  
KEY: monomial | degree of a monomial | polynomial | degree of a polynomial | standard form of a polynomial | trinomial                   DOK: DOK 1
4. ANS: A                   PTS: 1                   DIF: L4  
REF: 8-1 Adding and Subtracting Polynomials  
OBJ: 8-1.1 To classify, add, and subtract polynomials                   NAT: A.3.c| A.3.e  
TOP: 8-1 Problem 4 Adding Polynomials  
KEY: polynomial | trinomial | standard form of a polynomial  
DOK: DOK 2
5. ANS: D                   PTS: 1                   DIF: L3  
REF: 8-1 Adding and Subtracting Polynomials  
OBJ: 8-1.1 To classify, add, and subtract polynomials                   NAT: A.3.c| A.3.e  
TOP: 8-1 Problem 5 Subtracting Polynomials  
KEY: polynomial | standard form of a polynomial | trinomial  
DOK: DOK 1
6. ANS: B                   PTS: 1                   DIF: L3                   REF: 8-2 Multiplying and Factoring  
OBJ: 8-2.2 To factor a monomial from a polynomial                   NAT: N.5.c| A.3.c| A.3.e  
STA: A1.1.3           TOP: 8-2 Problem 3 Factoring Out a Monomial  
DOK: DOK 1
7. ANS: B                   PTS: 1                   DIF: L4                   REF: 8-6 Factoring  $ax^2 + bx + c$   
OBJ: 8-6.1 To factor trinomials of the form  $ax^2 + bx + c$            NAT: N.5.c  
STA: A1.1.3           TOP: 8-6 Problem 1 Factoring When  $ac$  Is Positive  
DOK: DOK 1
8. ANS: A                   PTS: 1                   DIF: L4                   REF: 8-6 Factoring  $ax^2 + bx + c$   
OBJ: 8-6.1 To factor trinomials of the form  $ax^2 + bx + c$            NAT: N.5.c  
STA: A1.1.3           TOP: 8-6 Problem 2 Factoring When  $ac$  Is Negative  
DOK: DOK 1

9. ANS: B                   PTS: 1                   DIF: L3                   REF: 8-6 Factoring  $ax^2 + bx + c$   
 OBJ: 8-6.1 To factor trinomials of the form  $ax^2 + bx + c$    NAT: N.5.c  
 STA: A1.1.3           TOP: 8-6 Problem 3 Applying Trinomial Factoring  
 DOK: DOK 2
10. ANS: B                   PTS: 1                   DIF: L4                   REF: 8-6 Factoring  $ax^2 + bx + c$   
 OBJ: 8-6.1 To factor trinomials of the form  $ax^2 + bx + c$    NAT: N.5.c  
 STA: A1.1.3           TOP: 8-6 Problem 4 Factoring Out a Monomial First  
 DOK: DOK 1
11. ANS: C                   PTS: 1                   DIF: L2                   REF: 4-6 Completing the Square  
 OBJ: 4-6.2 To rewrite functions by completing the square   NAT: A.2.a| A.4.c| A.4.g  
 TOP: 4-6 Problem 4 Completing the Square                   KEY: completing the square  
 DOK: DOK 2
12. ANS: A                   PTS: 1                   DIF: L3                   REF: 4-6 Completing the Square  
 OBJ: 4-6.1 To solve equations by completing the square   NAT: A.2.a| A.4.c| A.4.g  
 TOP: 4-6 Problem 5 Solving by Completing the Square       KEY: completing the square  
 DOK: DOK 2

**SHORT ANSWER**

13. ANS:  
 $(-3u+7b)(9u^2 + 21ub+49b^2)$

PTS: 1