

## Entering Advanced Math CP

Student: \_\_\_\_\_  
Date: \_\_\_\_\_

**Assignment:** Factor Polynomials with Leading Coefficient > 1

1. Factor the polynomial completely.

$$9x^2 + 66x + 121$$

Select the correct choice below and fill in any answer box within your choice.

- A.  $9x^2 + 66x + 121 = \boxed{\phantom{000000}}$
- B.  $9x^2 + 66x + 121$  is prime.

2. Factor the trinomial.

$$7y^4 - 11y^3 - 6y^2$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A.  $7y^4 - 11y^3 - 6y^2 = \boxed{\phantom{000000}}$  (Factor completely.)
- B.  $7y^4 - 11y^3 - 6y^2$  is prime.

3. Factor the trinomial completely.

$$x^2 + 9xy + 20y^2$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A.  $x^2 + 9xy + 20y^2 = \boxed{\phantom{000000}}$
- B. The trinomial is prime.

4. Factor the trinomial.

$$4x^2 - 12x + 9$$

Select the correct choice below and fill in any answer box within your choice.

- A.  $4x^2 - 12x + 9 = \boxed{\phantom{000000}}$  (Factor completely.)
- B.  $4x^2 - 12x + 9$  is prime.

5. Factor completely.

$$30x^2 + 55x + 15$$

Select the correct choice below and, if necessary, fill in any answer box within your choice.

- A.  $30x^2 + 55x + 15 = \boxed{\phantom{000000}}$
- B.  $30x^2 + 55x + 15$  is prime.

6. Factor the trinomial.

$$t^2 + 8td + 12d^2$$

Select the correct choice below and, if necessary, fill in any answer box within your choice.

A.  $t^2 + 8td + 12d^2 =$

B.  $t^2 + 8td + 12d^2$  is prime.

7. Factor the polynomial completely.

$$8x^2 - 14x + 3$$

Select the correct choice below and fill in any answer box within your choice.

A.  $8x^2 - 14x + 3 =$   (Factor completely.)

B.  $8x^2 - 14x + 3$  is prime.

8. Factor the polynomial by grouping.

$$5x^2 - 14x + 9$$

Select the correct choice below and fill in any answer box within your choice.

A.  $5x^2 - 14x + 9 =$

B.  $5x^2 - 14x + 9$  is prime.

9. Factor the trinomial completely.

$$9x^2 - 8xy - 1y^2$$

Select the correct choice below and fill in any answer box within your choice.

A.  $9x^2 - 8xy - 1y^2 =$

B.  $9x^2 - 8xy - 1y^2$  is prime.

10. Factor the polynomial completely.

$$6x^2 - 17x + 12$$

Select the correct choice below and fill in any answer box within your choice.

A.  $6x^2 - 17x + 12 =$   (Factor completely.)

B.  $6x^2 - 17x + 12$  is prime.

## Entering Advanced Math CP

Student: \_\_\_\_\_  
Date: \_\_\_\_\_

Assignment: Linear and Rational Equations

1. Solve the given equation for x.

$$3x - 7x + 4 = x - 3 + 7$$

Select the correct choice below and, if necessary, fill in the answer box within your choice.

- A.  $x =$
- B. The solution is all real numbers.
- C. There is no solution.

2. Solve the equation.

$$4y + 2(y - 2) = 8y - 4(y - 10)$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A.  $y =$   (Simplify your answer.)
- B. The solution is all real numbers.
- C. There is no solution.

3. Solve the equation.

$$9(x + 8) + 2 = 9x + 9$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A.  $x =$   (Simplify your answer.)
- B. The solution is all real numbers.
- C. There is no solution.

4. Solve the equation and check.

$$\frac{9t}{20} - \frac{t}{4} = 1$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A.  $t =$   (Simplify your answer.)
- B. The solution is all real numbers.
- C. There is no solution.

5. Solve the equation.

$$\frac{m - 33}{6} - \frac{5m - 20}{5} = 1$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A.  $m =$   (Simplify your answer.)
- B. The solution is all real numbers.
- C. There is no solution.

6. Solve the given equation for x.

$$\frac{x-1}{5} + \frac{x+8}{4} = \frac{8}{5}$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A.  $x =$   (Type an integer or a simplified fraction.)
- B. The solution is all real numbers.
- C. There is no solution.

7. Solve the equation and check.

$$\frac{1}{5}(a+4) = \frac{1}{2}(6-a)$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A.  $a =$   (Type an integer or a simplified fraction.)
- B. The solution is all real numbers.
- C. There is no solution.

8. Solve the given equation for y.

$$-4(4y-3) - y = -2(y-4)$$

Select the correct choice below and, if necessary, fill in the answer box within your choice.

- A.  $y =$   (Type an integer or a simplified fraction.)
- B. The solution is all real numbers.
- C. There is no solution.

9. Solve the equation.

$$5x - 2(x-7) = 3(x+1) + 7$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A.  $x =$   (Simplify your answer.)
- B. The solution is all real numbers.
- C. There is no solution.

10. Solve the given equation for the variable x.

$$\frac{x}{4} + \frac{4}{7} = \frac{7}{12}$$

Select the correct choice below and, if necessary, fill in the answer box within your choice.

- A.  $x =$
- B. The solution is all real numbers.
- C. There is no solution.

## Entering Advanced Math CP

Student: \_\_\_\_\_  
Date: \_\_\_\_\_

**Assignment:** Polynomial Special Products

1. Multiply.

$$(t-6)^4$$

$$(t-6)^4 = \boxed{\phantom{000000}}$$

(Simplify your answer.)

2. Multiply

$$(x^2 + 8y)(x^2 - 8y)$$

$$(x^2 + 8y)(x^2 - 8y) = \boxed{\phantom{000000}} \text{ (Simplify your answer.)}$$

3. Multiply the binomials.

$$(8x^2 - 7y^2)(x^2 - 5y^2)$$

$$(8x^2 - 7y^2)(x^2 - 5y^2) = \boxed{\phantom{000000}}$$

(Simplify your answer.)

4. Multiply.

$$(x+y)(7x-2)(x+4)$$

$$(x+y)(7x-2)(x+4) = \boxed{\phantom{000000}}$$

(Simplify your answer.)

5. Multiply, using special product methods.

$$[(-6s+4)+7][(-6s+4)-7]$$

$$[(-6s+4)+7][(-6s+4)-7] = \boxed{\phantom{000000}} \text{ (Combine like terms.)}$$

6. Multiply.

$$(x+8)^2$$

$$(x+8)^2 = \boxed{\phantom{000000}} \text{ (Simplify your answer.)}$$

7. Multiply.

$$(x-f)(x+f)(x^2-f^2)$$

$$(x-f)(x+f)(x^2-f^2) = \boxed{\phantom{000000}}$$

(Simplify your answer.)

8. Multiply using the rule for the square of a binomial.

$$(x-8)^2$$

$$(x-8)^2 = \boxed{\phantom{000000}}$$

9. Multiply.

$$(3b + 4)(3b - 4)$$

$$(3b + 4)(3b - 4) = \boxed{\phantom{000000}} \text{ (Simplify your answer.)}$$

10. Multiply using special product methods.

$$(6x - y)^2$$

$$(6x - y)^2 = \boxed{\phantom{000000}}$$

(Simplify your answer.)

## Entering Advanced Math CP

Student: \_\_\_\_\_  
Date: \_\_\_\_\_

**Assignment:** Properties of Exponents

1. Simplify the following. Assume that variables in the exponents represent integers and that all other variables are not 0.

$$\frac{x^{2a}(x^{2a})^8}{x^{2a-7}}$$

$$\frac{x^{2a}(x^{2a})^8}{x^{2a-7}} = \boxed{\phantom{000000}} \text{ (Simplify your answer.)}$$

2. Simplify. Use positive exponents for any variables.

$$(-3x^3y)(4x^4)(-3xy^3)$$

$$(-3x^3y)(4x^4)(-3xy^3) = \boxed{\phantom{000000}}$$

(Type exponential notation with positive exponents.)

3. Simplify. Write the answer using positive exponents only.

$$\left(\frac{x^{-2}}{x^{-4}}\right)^{-9}$$

$$\left(\frac{x^{-2}}{x^{-4}}\right)^{-9} = \boxed{\phantom{000000}}$$

4. Simplify. Use positive exponents for any variables. Assume that all bases are not equal to 0.

$$5^0 - 9n^0$$

$$5^0 - 9n^0 = \boxed{\phantom{000000}}$$

5. Simplify the expression.

$$(-2x^7y^4)(5x^3y^2)$$

$$(-2x^7y^4)(5x^3y^2) = \boxed{\phantom{000000}}$$

(Simplify your answer. Use positive exponents only.)

6. Evaluate the expression. Assume that all bases are not equal to 0.

$$-6x^0$$

$$-6x^0 = \boxed{\phantom{000000}}$$

(Simplify your answer.)

7. Simplify the expression.

$$\frac{(y^3)^{-4}}{y^3}$$

$$\frac{(y^3)^{-4}}{y^3} = \boxed{\phantom{000000}} \text{ (Use positive exponents only.)}$$

8. Simplify. Use positive exponents for any variables.

$$\frac{3p^{-8}p^5}{p^{-3}}$$

$$\frac{3p^{-8}p^5}{p^{-3}} = \boxed{\phantom{000}}$$

9. Simplify. Use positive exponents for any variables. Assume that all bases are not equal to 0.

$$-9x^{-4}$$

$$-9x^{-4} = \boxed{\phantom{000}} \text{ (Simplify your answer.)}$$

10. Use the quotient rule to simplify.

$$\frac{-8a^4b^5c^{11}}{2a^2b^3c^7}$$

$$\frac{-8a^4b^5c^{11}}{2a^2b^3c^7} = \boxed{\phantom{000}}$$

(Type your answer using exponential notation.)

## Entering Advanced Math CP

Student: \_\_\_\_\_  
Date: \_\_\_\_\_

Assignment: Simplify Radical Expressions

1. Simplify. Assume that all variables represent positive real numbers.

$$-\sqrt{448x^6y^{15}}$$

$$-\sqrt{448x^6y^{15}} = \boxed{\phantom{000}}$$

(Type an exact answer, using radicals as needed.)

2. Use the quotient rule to simplify. Assume that all variables represent positive real numbers.

$$\sqrt{\frac{7n^2}{4m^2}}$$

$$\sqrt{\frac{7n^2}{4m^2}} = \boxed{\phantom{000}}$$

(Simplify your answer. Type an exact answer, using radicals as needed.)

3. Simplify by factoring.

$$\sqrt{54}$$

$$\sqrt{54} = \boxed{\phantom{000}}$$

(Type an exact answer, using radicals as needed.)

4. Simplify. Assume that all variables represent positive real numbers.

$$\sqrt{y^9}$$

$$\sqrt{y^9} = \boxed{\phantom{000}}$$

(Type an exact answer, using radicals as needed.)

5. Use the quotient rule to simplify. Assume that all variables represent positive real numbers.

$$\sqrt{\frac{x^5y^4}{9}}$$

$$\sqrt{\frac{x^5y^4}{9}} = \boxed{\phantom{000}}$$

(Simplify your answer. Type an exact answer, using radicals as needed.)

6. Simplify. Assume that all variables represent positive real numbers.

$$\sqrt{9x^4y^7}$$

$$\sqrt{9x^4y^7} = \boxed{\phantom{000}}$$

(Type an exact answer, using radicals as needed. Simplify your answer.)

7. Simplify. Assume that all variables represent positive real numbers.

$$\sqrt[3]{256x^5}$$

$$\sqrt[3]{256x^5} = \boxed{\phantom{000}}$$

(Type an exact answer, using radicals as needed. Simplify your answer.)

8. Simplify. Assume that all variables represent positive real numbers.

$$\sqrt{25x^2y^2}$$

$$\sqrt{25x^2y^2} = \boxed{\phantom{000}}$$

(Type an exact answer, using radicals as needed. Simplify your answer.)

9. Use the quotient rule to simplify.

$$\sqrt{\frac{6}{49}}$$

$$\sqrt{\frac{6}{49}} = \boxed{\phantom{000}}$$

(Type an exact answer, using radicals as needed. Use integers or fractions for any numbers in the expression. Simplify your answer.)

10. Use the product rule to simplify the radical.

$$\sqrt{54}$$

$$\sqrt{54} = \boxed{\phantom{000}}$$

(Simplify your answer. Type an exact answer, using radicals as needed.)

## Entering Advanced Math CP

**Assignment: Solve Linear Inequalities**

Student: \_\_\_\_\_  
Date: \_\_\_\_\_

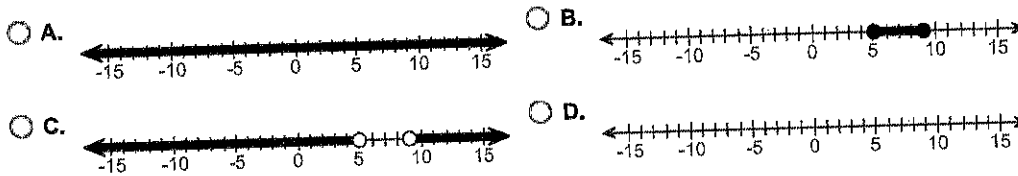
1. Solve the following compound inequality. Graph the solutions.

$$x > 5 \text{ or } x < 9$$

Choose the correct answer below.

- A.  $x < 5$                        B.  $x < 9$   
 C.  $5 < x < 9$                        D.  $x < 5 \text{ or } x < 9$   
 E. The solutions are all real numbers.                       F. There is no solution.

Choose the correct graph below.



2. Solve the following compound inequality.

$$0 \leq 2x - 3 \leq 9$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. The solutions are .  
 (Simplify your answer. Type an inequality or a compound inequality.)  
 B. The solutions are all real numbers.  
 C. There is no solution.

3. Solve the following compound inequality.

$$1 \leq \frac{4}{5}x + 5 \leq 6$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. The solutions are .  
 (Simplify your answer. Type an inequality or a compound inequality.)  
 B. The solutions are all real numbers.  
 C. There is no solution.

4. Solve the following compound inequality.

$$5x + 3 \leq 8 \text{ or } 7x > 19$$

Choose the correct answer below.

- A.  $x \leq 5$  or  $x > \frac{7}{19}$
- B.  $x \leq 1$
- C.  $x \leq 1$  or  $x > \frac{7}{19}$
- D.  $x \leq 1$  or  $x > \frac{19}{7}$
- E.  $1 \leq x < \frac{19}{7}$
- F.  $\frac{7}{19} < x \leq 1$
- G.  $x > \frac{19}{7}$
- H.  $x \leq 5$
- I. The solutions are all real numbers.
- J. There is no solution.

5. Solve the following compound inequality.

$$4x \geq 9 \text{ or } -\frac{5}{6}x - 5 > 1$$

Choose the correct answer below.

- A.  $x \geq \frac{9}{4}$
- B.  $x < -\frac{36}{5}$
- C.  $x > -\frac{42}{5}$
- D.  $x \geq \frac{9}{4}$  or  $x < -\frac{36}{5}$
- E.  $-\frac{42}{5} < x \leq \frac{4}{9}$
- F.  $x \geq \frac{9}{4}$  or  $x > -\frac{42}{5}$
- G.  $-\frac{36}{5} < x \leq \frac{9}{4}$
- H.  $x \geq \frac{4}{9}$  or  $x > -\frac{42}{5}$
- I. The solutions are all real numbers.
- J. There is no solution.

6. Solve the following compound inequality.

$$-15 < 3(x - 5) \leq 2$$

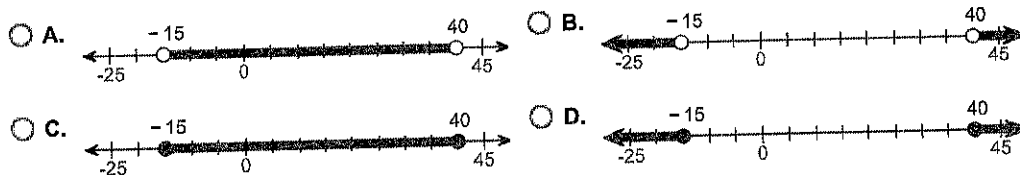
Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. The solutions are .  
(Simplify your answer. Type an inequality or a compound inequality.)
- B. The solutions are all real numbers.
- C. There is no solution.

7. Graph the values of  $x$  that satisfy the given conditions.

$$x \leq -15 \text{ or } x \geq 40$$

Choose the correct graph below.



8. Solve the compound inequality.

$$5(x-1) < 20 \text{ or } x+7 > 10$$

Choose the correct answer below.

- A.  $-3 < x < -5$   B.  $x < 5 \text{ or } x > 3$   
 C.  $3 < x < 5$   D.  $x > 3 \text{ or } x < -5$   
 E.  $x < 5 \text{ or } x > -3$   F.  $x > 3$   
 G.  $x < -5$   H.  $x < 5$   
 I. The solutions are all real numbers.  J. There is no solution.

9. Solve the following compound inequality.

$$-2x < -6 \text{ and } x - 5 < 5$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. The solutions are .  
(Simplify your answer. Type an inequality or a compound inequality.)  
 B. The solutions are all real numbers.  
 C. There is no solution.

10. Solve the compound inequality.

$$-\frac{1}{2} \leq \frac{30x-1}{38} < \frac{35}{38}$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. The solutions are .  
(Simplify your answer. Type an inequality or a compound inequality.)  
 B. The solutions are all real numbers.  
 C. There is no solution.

## Entering Advanced Math CP

Student: \_\_\_\_\_  
Date: \_\_\_\_\_

**Assignment: Solve Quadratic Equations**

1. Solve the equation by completing the square. The equation has real number solutions.

$$x^2 + 12x + 34 = 0$$

$$x = \boxed{\phantom{000}}$$

(Simplify your answer. Type an exact answer, using radicals as needed. Use a comma to separate answers as needed.)

2. Add the proper constant to each binomial so that the resulting trinomial is a perfect square trinomial. Then factor the trinomial.

$$y^2 - 20y$$

$$y^2 - 20y + \boxed{\phantom{000}} = \boxed{\phantom{000}}$$

3. Use the quadratic formula to solve the equation.

$$x^2 + 7x = -8$$

$$x = \boxed{\phantom{000}}$$

(Type an exact answer, using radicals as needed. Use a comma to separate answers as needed.)

4. Use the quadratic formula to solve the equation.

$$2m^2 + 7m = 8$$

$$m = \boxed{\phantom{000}}$$

(Type an exact answer, using radicals as needed. Use a comma to separate answers as needed.)

5. Use the square root property to solve the equation. The equation has real number solutions.

$$(x - 1)^2 = 8$$

$$x = \boxed{\phantom{000}}$$

(Simplify your answer. Type an exact answer, using radicals as needed. Use a comma to separate answers as needed.)

6. Solve the equation.

$$3(6x - 7)(3x + 4) = 0$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. The solution(s) is/are  $x = \boxed{\phantom{000}}$ .  
(Type an integer or a simplified fraction. Use a comma to separate answers as needed.)
- B. There is no solution.

7. Use the square root property to solve the equation.

$$(x + 4)^2 = -75$$

$$x = \boxed{\phantom{000}}$$

(Simplify your answer. Type an exact answer, using radicals as needed. Express complex numbers in terms of  $i$ . Use a comma to separate answers as needed.)

8. Use the quadratic formula to solve the equation.

$$\frac{1}{7}y^2 = -y - \frac{1}{28}$$

$y =$

(Type an exact answer, using radicals as needed. Use a comma to separate answers as needed.)

9. Solve the equation.

$$z^2 + 40 = 14z$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. The solution(s) is/are  $z =$  .  
(Type an integer or a simplified fraction. Use a comma to separate answers as needed.)
- B. There is no solution.

10. Solve the equation by completing the square.

$$x^2 + 4x + 2 = 0$$

$x =$

(Simplify your answer. Type an exact answer, using radicals as needed. Use a comma to separate answers as needed.)

# Entering Advanced Math CP

**Assignment: Solve Radical Equations**

Student: \_\_\_\_\_  
Date: \_\_\_\_\_

1. Solve.

$$\sqrt{x+3} = \sqrt{2x-5}$$

Select the correct choice below and fill in any answer boxes present in your choice.

- A.  $x =$   (Simplify your answer. Use a comma to separate answers as needed.)
- B. There is no solution.

2. Solve.

$$\sqrt{2x} = -4$$

Select the correct choice below and fill in any answer boxes present in your choice.

- A.  $x =$   (Simplify your answer. Use a comma to separate answers as needed.)
- B. There is no solution.

3. Solve.

$$\sqrt{6x+1} + 6 = 0$$

Select the correct choice below and fill in any answer boxes present in your choice.

- A.  $x =$   (Simplify your answer. Use a comma to separate answers as needed.)
- B. There is no solution.

4. Solve.

$$\sqrt{2x-1} = 3$$

Select the correct choice below and fill in any answer boxes present in your choice.

- A.  $x =$   (Simplify your answer. Use a comma to separate answers as needed.)
- B. There is no solution.

5. Solve.

$$\sqrt{y+5} = 4 - \sqrt{y-16}$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A.  $y =$   (Type an integer or a simplified fraction. Use a comma to separate answers as needed.)
- B. There is no real solution.

6. Solve.

$$x - \sqrt{6-x} = -6$$

Select the correct choice below and fill in any answer boxes present in your choice.

- A.  $x =$   (Simplify your answer. Use a comma to separate answers as needed.)
- B. There is no solution.

7. Solve.

$$\sqrt[4]{5x+4} - 3 = 0$$

Select the correct choice below and fill in any answer boxes present in your choice.

- A.  $x =$   (Type an integer or a simplified fraction. Use a comma to separate answers as needed.)
- B. There is no solution.

8. Solve.

$$\sqrt[3]{4x} = 2$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A.  $x =$   (Type an integer or a simplified fraction. Use a comma to separate answers as needed.)
- B. There is no real solution.

9. Solve.

$$\sqrt[3]{x-5} + 2 = 0$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A.  $x =$   (Type an integer or a simplified fraction. Use a comma to separate answers as needed.)
- B. There is no real solution.

10. Solve.

$$\sqrt{2x-7} - \sqrt{x} + 3 = 4$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A.  $x =$   (Type an integer or a simplified fraction. Use a comma to separate answers as needed.)
- B. There is no real solution.