

Name: Answer

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

Block: \_\_\_\_\_

# Unit 1A Practice Test

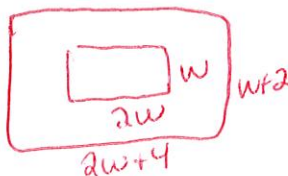
Directions: Do all additional work needed on a separate piece of paper. Your work must be neat, well organized and complete. Make sure your final answers are clear. Copy your answers to the appropriate place provided on the right. Remember, NO WORK = NO CREDIT

## OBJECTIVE 1: Add/Sub/Multiply expressions

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

$$(x^2+2x-8)(2x-7)$$

- Find the volume of a rectangular box given the length of  $(x - 2)$ , width of  $(x + 4)$  and height of  $(2x - 7)$
- A rectangular swimming pool is twice as long as it is wide. A small concrete walkway surrounds the pool. The walkway is 4 feet longer than the pool and 2 feet wider. Write a polynomial expression that represents the area of the walkway



- Subtract  $4(-8xy + 3)$  from  $(4x^2 - 6 + 5xy)$
- Simplify:  $(x - 5)^2 - (x + 3)$

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

## OBJECTIVE 2: Factoring

$$x^2 - 10x + 25 = (x-5)^2$$

For numbers 7 - 10, factor completely.

7.  $x^2 - 2x - 24$

$$(x-6)(x+4)$$

8.  $\frac{2ax^2 - 16bx + 8abx^3}{2x}$

GCF = 2x

9.  $6x^2 - 40x - 14$

$$2(3x^2 - 20x - 7) = 2(3x-2)(3x+1)$$

10.  $3x^3 - 5x^2 - 12x$

$$x(3x^2 - 5x - 12) = x(3x-9)(3x+4)$$

## OBJECTIVE 3: Solving Quadratics

- A square and a rectangle have the same area. The side of the square is represented by two times  $x$ . The length of the rectangle is 4 and the width is  $x + \frac{6}{x}$ . How long is the side of the square?



- Solve for  $x$  by completing the square for  $3x^2 - 12x - 7$

$$3x^2 - 12x = 7$$

- Given the equation  $3x^2 - 4x - 12 = 0$ , how many roots are there? Rational or irrational?

$$b^2 - 4ac \rightarrow (-4)^2 - 4(3)(-12) = 16 + 144 = 160$$

- Use the quadratic formula to solve for  $x$ :  $2x^2 + 11 = -14x$

$$\frac{-14 \pm \sqrt{14^2 - 4(2)(11)}}{2(2)}$$

$$2x^2 + 14x + 11 = 0$$

Be prepared to use these skills for Application Questions in each of the objectives that are not included here.

## Answers

1.  $2x^3 - 3x^2 - 30x + 56$

2.  $8w + 8$

3.  $4x^2 + 37xy - 18$

4.  $x^2 - 11x + 22$

5. N/A HERE

6. N/A HERE

6	5	4	3	2	1	0
100	89	79	60	55	50	NW

7.  $(x+4)(x-6)$

8.  $2x(ax - 8b + 4abx^2)$

9.  $2(x-7)(3x+1)$

10.  $x(x+3)(3x+4)$

11. N/A HERE

12. N/A HERE

6	5	4	3	2	1	0
100	89	79	60	55	50	NW

13.  $(3 \cdot 2) = 6$

14.  $2 \pm \sqrt{19/3}$

15. 2 real irr.

16.  $\frac{-14 \pm \sqrt{103}}{4}$

17. N/A HERE

18. N/A HERE

6	5	4	3	2	1	0
100	89	79	60	55	50	NW

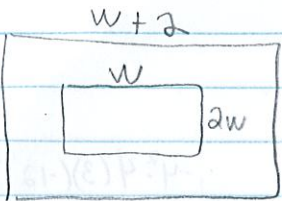
# Unit 1A Practice

1)  $(x-2)(x+4)$

$$x^2 - 2x + 4x + 8$$

$$(x^2 + 2x + 8)(2x - 7)$$

$$2x^3 + 4x^2 + 16x - 7x^2 - 14x + 56$$

2) 

$$(2w+4)(w+2)$$

$$2w^2 + 8w + 8$$

$$- 2w^2$$

$$\boxed{8w + 8}$$


$$- (-32xy + 12)$$


3)  $+32xy + 12 + 4x^2 - 6 + 5xy$

$$4x^2 + 37xy - 18$$

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

$$x^2 - 10x + 25 - x - 3 = x^2 - 11x + 22$$

13) 



$$\begin{array}{r} -24 \\ -6 \times 4 \\ -2 \end{array}$$

$$4(x+3) = 4x^2$$

$$4x + 12 = 4x^2$$

$$4x^2 - 4x - 12 = 0$$

$$2(2x^2 - 2x - 6) = 0$$

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

$$x = 3$$

$$\frac{4x^2 - 4x - 24}{4}$$

$$x^2 - x - 6$$

$$\begin{array}{r} -6 \\ -3 \times 2 \\ -1 \end{array}$$

$$\begin{array}{r} -6 \\ -3 \times 2 \\ -2 \end{array}$$

$$\begin{aligned}
 14) \quad & 3x^2 - 12x = 7 \\
 & 3(x^2 - 4x + \underbrace{(-\frac{4}{2})^2}) = 7 + 3(\underbrace{(-\frac{4}{2})^2}) \\
 & 3(x^2 - 4x + 4) = 7 + 3(4) \\
 & 3(x-2)(x-2) = 7 + 12 \\
 & 3(x-2)^2 = 19 \\
 & (x-2) = \sqrt{19/3} \\
 & x = 2 \pm \sqrt{19/3}
 \end{aligned}$$

$$\begin{aligned}
 15) \quad & a=3 & -b \pm \sqrt{b^2 - 4ac} & -4 \pm \sqrt{4(3)(-12)} \\
 & b=-4 & 2a & = 16 + 144 \\
 & c=-12 & & = 160 \\
 & & & 2 \text{ real irrational}
 \end{aligned}$$

$$\begin{aligned}
 16) \quad & 2x^2 + 14x + 11 \\
 & a=2 \\
 & b=14 \\
 & c=11 \\
 & \frac{-14 \pm \sqrt{14^2 - 4(2)(11)}}{2(2)} \\
 & = \frac{-14 \pm \sqrt{108}}{4}
 \end{aligned}$$

