

Name: \_\_\_\_\_

## SM2 Unit 1 Extra Practice

1.1- Simplify and justify your process for each problem.

1)  $x^6 \cdot x^7$

2)  $x^{-1}x^2$

3)  $(x^2)^3$

4)  $-\frac{2a^3}{4a^7}$

5)  $(3r^4)(-6r^2)$

6)  $-\frac{3t^9}{6t^{18}}$

7)  $(y^2)^4$

8)  $2x^2 \cdot (x^2)^5$

9)  $(-3u^8)(-2u^2)$

10)  $a^3b^4 \cdot ab^6(ab)^0$

11)  $\frac{8t^{-3}}{-2t^{-5}}$

12)  $(-2t^5)^3$

13)  $y^{-3}y^5$

14)  $\frac{w^{-4}}{w^6}$

15)  $(y^2)^6 \cdot 3y^5$

16)  $\frac{(t^2)^5}{(t^3)^4}$

17) Put an "X" in the column with the most appropriate unit of measure for each scenario.

		<i>in</i>	<i>in</i> <sup>2</sup>	<i>in</i> <sup>3</sup>
a)	The amount of flat space on a table top.			
b)	The amount of land covered by grass in your neighbor's yard.			
c)	The amount of pudding it would take to fill a swimming pool.			
d)	The distance you walked to school.			
e)	The amount of space on a wall to paint.			
f)	You are making a sand box and you need to fill it with sand.			
g)	You are late for class and you need to run the distance from your car to your first period.			
h)	The amount of space inside a dog kennel.			

Write 3 paragraphs, one for each column, explaining why the scenarios you placed into each column belong in that column.

1.2- Find the measure of each quantity. Include units.

- 18) A rectangular garden is 15 *ft* by 25 *ft*. They want to decrease the garden and put in a 3 *ft* wide walkway completely around it. What is the new perimeter of the garden?
- 19) The radius of the Earth is about 3959 *mi*. What is the surface area of the Earth?

20) You are filling a conic shaped balloon with helium. When it is full, the radius of the base of the cone is 6 *in* and the balloon is 15 *in* tall. How many cubic inches of helium are in the balloon?

21) The tiny home movement is in full swing. You see some plans for a tiny house that is shaped like a cube with a square pyramid (with the same sized base as the cube) placed on top for a roof. The sides of the cube all measure 10 *ft* and the pyramid on top is 5 *ft* tall. How much space is inside this tiny home?

22) What is the surface area of a yield sign if the top is 36 *in* wide and the height is 31.2 *in*? (Ignore the curved edges.)



23) What is the distance around a circular fountain if the radius is 16 *ft*?

1.3- Put each polynomial in standard form. Identify the lead coefficient and name based on degree and number of terms.

24)  $-4k + 7k^4$

Standard Form:  
LC:  
Name:

25)  $-3x^2$

Standard Form:  
LC:  
Name:

26)  $4x - 8 + \frac{1}{2}x^2$

Standard Form:  
LC:  
Name:

27)  $-a^2 - 5 - 10a^3 + 7a$

Standard Form:  
LC:  
Name:

28) 10

Standard Form:  
LC:  
Name:

29)  $3x - 4$

Standard Form:  
LC:  
Name:

Perform the indicated polynomial operations.

30)  $(4m^4 + 8m^2) - (m^4 + 4m^2 + m^3)$

31)  $(6n - 2n^2 + 7n^3) + (5n^3 + 8n^5 - 5n)$

32)  $(-7x^2 - 8x) - (-5x - 6x^2)$

33)  $(4v - 3)(8v - 5)$

34)  $6x(x - 7)$

35)  $(2n - 6)(n - 1)$

36)  $(2x - 5)(2x + 5)$

37)  $(4b + 3)^2$

38)  $8h^3(2h^4 - 3h)$

1.4- Use the following functions for problems 39-44:

$$f(x) = \frac{1}{2}x - 2, \quad g(x) = 2x^2 - 3x + 5, \quad h(x) = -|x + 2| - 3$$

Evaluate each function.

39)  $f(8)$

40)  $g(-1)$

41)  $h(6)$

42)  $g(3)$

43)  $h(-5)$

44)  $f(9)$

Given  $f(x) = -3x + 7$  and  $g(x) = 5x - 2$ , simplify the expressions. Explain what each one means:

45)  $(f + g)(x)$

46)  $(f - g)(x)$

47)  $(fg)(x)$

48)  $(f + g)(2)$

49)  $(f - g)(0)$

50)  $(fg)(3)$