Unit 3 Practice Test Name: _____

Solve for x.

1.	$\frac{3}{4}x = -\frac{1}{3}$	2.	$\frac{t}{4} - 10 = -6$
3.	$3 - 4d = 13$	4.	$-\frac{3}{8}x + 2 = 0$
5.	$7(9 + k) = 84$	6.	$2j - 4j + 10 = 12$
7.	$\frac{v+9}{3} = 8$	8.	$16 = -p + 7$

9.	$11 - \frac{1}{10}x = 10$	10.	$18x - (8x - 7) = 67$
11.	$44 - 2(3x + 4) = -18$	12.	$18 = \frac{1}{2}(-3 + 3n)$
13.	$\frac{7}{20}(x-3)^2 = 35$	14.	$3 + \sqrt{2x+9} = 8$
15.	$9n^2 + 10 = 91$	16.	$5 - \sqrt{2k} = 3$
17.	$\frac{3(5x-2)}{4} = 6$	18.	$4(n + .5) = 5(2n - 2)$

19. $8n - 3n = -10(2 - 5n) - (n - 1)$

20. $2(2x - 4) + 16 = 4(x + 2)$

21. $-15y + 7y + 1 = 3 - 8y$

22. $-5(1-5x)+5(-8x-2)=-4x-8x$

23. $\frac{1}{2}(2-4x)+2x=13$

24. What is the solution for the equation $x + 1 = x + 2$?
1) -1
2) $\frac{1}{2}$
3) all real numbers
4) There is no solution.

25. If $2x + 5 = -25$ and $-3m - 6 = 48$, what is the product of x and m?
1) -270
2) -33
3) 3
4) 270

26. Debbie solved the linear equation $3(x + 4) - 2 = 16$ as follows:

[Line 1] $3(x + 4) - 2 = 16$

[Line 2] $3(x + 4) = 18$

[Line 3] $3x + 4 = 18$

[Line 4] $3x = 14$

[Line 5] $x = 4\frac{2}{3}$

She made an error between lines
1) 1 and 2
2) 2 and 3
3) 3 and 4
4) 4 and 5

Write an equation and solve for x.

27. The quotient of -36 and x is 4.

28. The sum of –5 and a number is –15.

29. Four less than twice a number is negative 2.

30. The quotient of 4 more than x and 5 is 11.

31. **HEIGHT** Todd is 5 inches taller than his brother. The sum of their heights is 139 inches. Find Todd's height.

32. Michael is 3 times as old as Michelle is. If the sum of their ages is 24, how old is Michael?

33. The product of number x and -6 is equal to the sum of the same number x and 21.

34. Two-thirds times a number plus 7 equals 7 minus the number. Find the number.

35.	The melting point of mercury is about ¼ of the melting point of krypton. The melting point of mercury is $-39°C$. Find the melting point of krypton. **Equation:** **Answer:**
36.	*"An asteroid travels 300,000 miles in 4 hours. How fast was it traveling?"* $d = r \cdot t$
37.	Rolex Smudgepot owns 17 ounces of gold. This is one ounce more than three fourths of the amount he owned last year. How much did he own last year? _____ oz

Write an equation and solve.

38.	The sum of two consecutive numbers is 29. **Equation:** **Answer:**	39.	Find 2 consecutive odd integers whose sum is -3. **Equation:** **Answer:**
40.	In order to join an online learning community, there is a $20 startup fee and a $5 monthly fee. If you have paid $70 for the online learning community, how many months have passed? **Equation:** **Answer:**	41.	An attorney charges a fixed fee on $250 for an initial meeting and $150 per hour for all hours worked after that. The bill came out to $3700, how many hours were worked? Then, find the charge for 100 hours of work. **Equation:** **Answer 1:** **Answer 2:**

42. Find the 34th term in the sequence.

1.6, 4, 6.4, 8.8, 11.2, . . .

Term			Value
1		=	
2		=	
3		=	
4		=	
5		=	
x		=	

Equation:

Answer:

43. What figure # in sequence would have 55 squares?

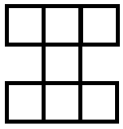

Figure 1

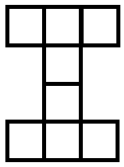

Figure 2

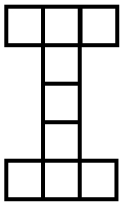

Figure 3

Figure #	Number of Squares		
1		=	
2		=	
3		=	
4		=	
5		=	
t		=	

Equation:

Answer:

For problems #44-46, there is a helpful review video on my website. If you forget how to do these make sure to check them out.

Distance = rate * time

There will be three types of problems that we can solve that involve uniform motion.'

1- Motion in opposite directions

2- Motion in the same direction

3- Round trip

We will use charts to help us organize what we know and to guide us in setting up equations!

44. Suzanne was traveling at 11 meters per hour and Wayne was traveling at 10 meters per hour. They were traveling directly away from each other. When will Suzanne and Wayne be 205 meters apart?

Rate	Time	Distance

Equation:

Answer:

45. Example 1: *"A helicopter travels to the East going 120 mph. Two hours later, it is determined that the helicopter will need to be escorted on its journey to the East. How long will it take an F-14, traveling at 900 mph to catch up with the helicopter?"*

To help organize this information, it is best to use a table, like this one.

	Rate	Time	Distance
Helicopter			
F-14			

Equation:

Answer:

46. Leann travels at 18 kilometers/hour and Jack travels at 26 kilometers/hour. They traveled in the same direction but Leann had a 1 hour head start.

How long will it take for Jack to catch up to Leann?

Rate	Time	Distance

Equation:

Answer:

Solve the formula for the indicated variable.

47. $P = 2l + 2w$ for w.

48. $A = \frac{1}{2}bh$, for h

49. $Ax + By = C$, for y

50. $C = \frac{5}{9}(F - 32)$, for F

51. $a = \frac{v - u}{t}$ for u

52. $A = \frac{1}{2}h(b + c)$ for h

53. $L = a + (n - 1)d$ for n

54. $D = \frac{C - S}{n}$ for S

55. A)

The area A of a sector (a pie-wedge-shaped section) of a circle is given by:

$$A = \frac{\pi r^2 S}{360}$$

...where r is the radius of the circle and S is the angle measure (in degrees) of the sector. Solve this equation for S.

S =

B) Find the angle measure S, given that the radius is 5 inches and the Area of the sector is 31.25 π inches squared.

56. The value of an investment at simple interest is given by the formula A = P + Prt. A is the final value after t years at the interest rate r (as a decimal) if the initial amount P is invested.

A) Solve for t.

B) How long must $200 be invested at 8% interest to reach a value of $248?

57. The volume enclosed by a cone is given by the formula

$$V = \frac{1}{3}\pi r^2 h$$

Where r is the radius of the circular base of the cone and h is its height.

a. Make the radius, r, the new subject of the equation by isolating the variable.

b. Find the radius given that the volume of the cone is 9377.1 cubic centimeters, the height of the cone is 31 centimeters, and π = 3.14.

58. Solve $Q = 3a + 5ac$ for a

59. Solve for X.

GC+ AX = BX