MasterMath

8th Grade Final Exam

Name _____

Date _____

Closed Book; 90 minutes to complete

CUCC; You may use a calculator.

1.

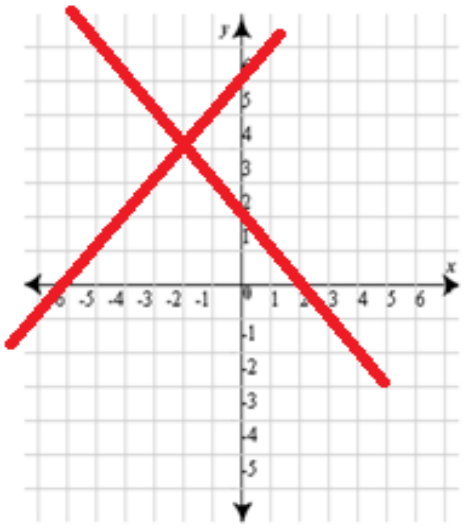
Equation 1	Equation 2	Find an ordered pair that solves this pair of
4x + 5y = 33	y = x + 3	(2, 5)

2. You have 11 coins, and all are either nickles or pennies. You have a total of 27 cents. How many of each coin do you have?

nickles	pennies
4	7

3. Graph these two equations to solve for x: y = x + 6; y = -x + 2

(-2, 4)



4. A test has twenty questions worth 100 points. The test consists of True/False questions worth 3 points each and multiple choice questions worth 11 points each. How many true - false questions are on the test?

15

5. Solve for y: 2x + y = 2z

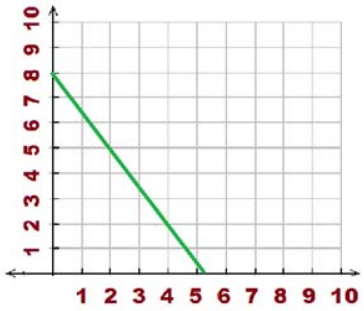
y = 2x + 2z

6. A farmer has 160 acres planted. 1/4 is soy beans (s); he has twice as much soy bean planted as corn (c); and the rest is tomatoes (t). How many acres of tomatoes does he have planted?

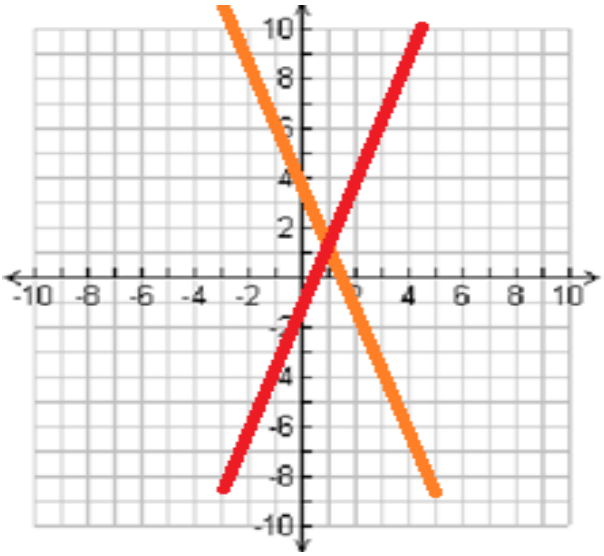
100

7. Find the slope:

-1.5

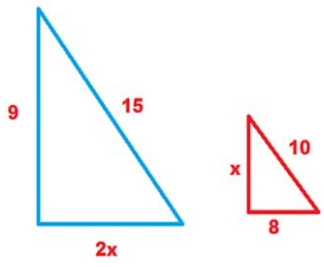


8. Draw a line with a slope of 3, and another with a slope of -3. Make both lines go through point (1, 1).



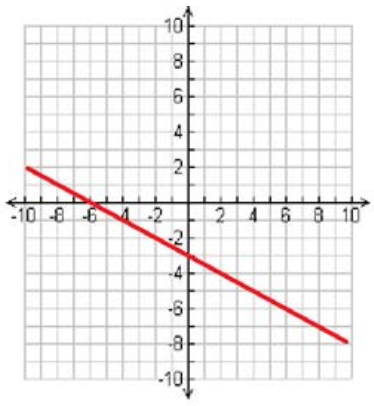
9. The perimeter of the larger triangle is 150% of the perimeter of the smaller triangle. What is the value of x?

6



10. Write the equation for the line below.

y = -.5x - 3

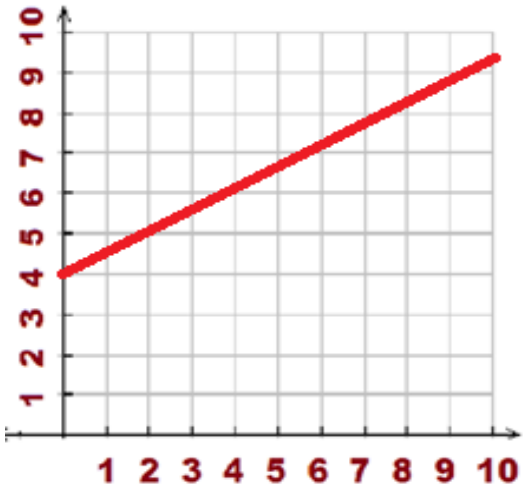


11. What is the slope and the y intercept for the line that represents this equation: 9x + 3y = 15

slope	y intercept
-3	15

12. A taxi charges (T) $4 plus $.50 per mile. Create an equation to determine what the taxi charge would be for any miles traveled (m). Create a table showing what the cost would be for 1 mile, 3 miles, 5 miles, 7 miles and 9 miles. Graph the data in this table.

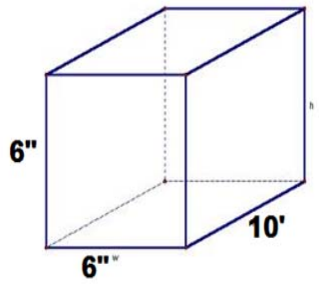
m	1	3	5	7	9
T = 4 + .5m	4.5	5.5	6.5	7.5	8.5



13. You have dinner at Louie's and the total comes to $11.50. You ordered lasagna and a salad. The salad cost $2.50, and you left a tip of 15% of the bill. How much was the lasagna?

$7.50

14. What are the dimensions of this rectangular prism in centimeters? (1" = 2.54 cm)



15.24 x 15.24 x 25.4

15. Your car's gas mileage is 34 miles per gallon. What is the gas mileage in kilometers per liter? (1 mile = 1.61 km; 1 gal = 3.785 liters)

14.46 km/l

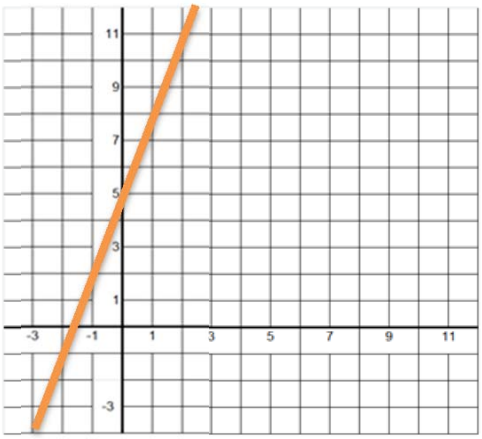
16. The slope of a straight line is 2. The y intercept of the line is 12. What is the equation that the line represents?

y = 2x + 12

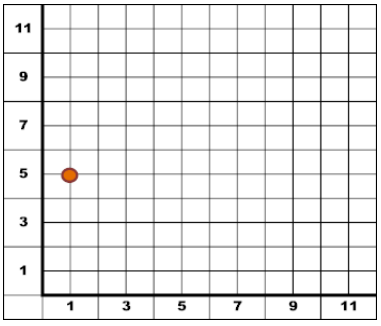
17. These two points are on a straight line: (0, 6), (3, 12). What equation is represented by the straight line?

y = 2x + 6

18. Draw a line that represents this equation: y = 5 + 3x



19. Write an equation for a line with a slope of 2 that goes through this point.



y = 2x + 3

20. Solve these system of linear equations:

		Solution	
Equation 1	Equation 2	x	y
y = 5x + 4	y = 2x + 3	- 1/3	2 1/3

21. A burger and a smoothie costs $5. You and your friends buy 3 burgers and 6 smoothies, and the bill comes to $21, How much does a burger cost? How much does a smoothie cost?

burger	smoothie
$3	$2

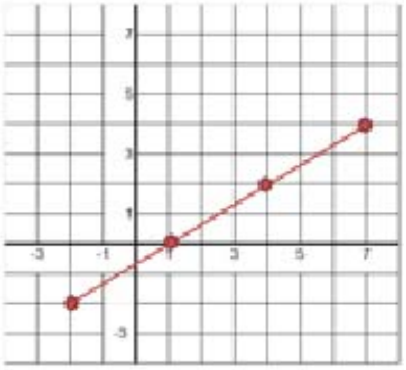
22. Please convert the equation to a Function

Equation	Function
2x + 3y = 63	y = -2/3x + 21

23. You have $40 to spend on your evening with a friend at the Carnival. You want to buy some ride tickets (y) and also some food tickets (x). The ride tickets are $4 each. The food tickets are $6 each. What is the domain and the range of the tickets you could purchase?

Domain	Range
{0, 1, 2, 3, 4, 5, 6}	{0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10}

24. Find the Domain and the Range of the function represented in this graph.



Domain	Range
{-2, -1, 0, 1, 2, 3, 4, 5, 6, 7}	{-2, -1, 0, 1, 2, 3, 4}

25. Big State University studied the idea that the gas mileage (m) of a vehicle decrease as the number of wheels (w) on the vehicle decreased. They came up with a function that they felt described the relationship: m = 96.75 ÷ w. Is there a discrete or a continuous domain?

discrete

26. Your teacher says that your tomatoe plant will grow 1.25" taller each month. It is now 6' tall. Write a formula that will tell you how tall your plant is at any time in the future. Is there a continuous or a discrete domain?

formula	y = 1.25x + 6
Discrete or Continuous?	continuous

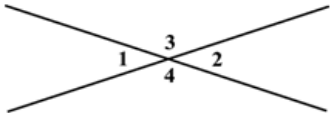
27. Does this table represent a linear function?

yes

x	y
0	6
1	8
2	10
3	12
4	14
5	16

28. Angle 2 is 28°. How big is Angle 3?

152°

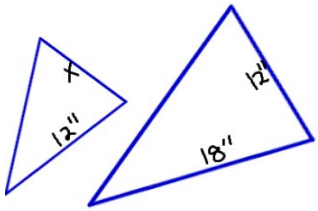


29. What is the Sum of the Angles of this polygon?

900°

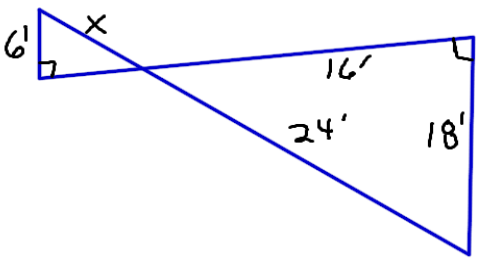
30. These are similar triangles. Find x.

18"



31. Find x

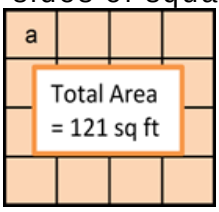
8'



32. The area of a circle is 113.04 Sq In. What is the radius of the circle?

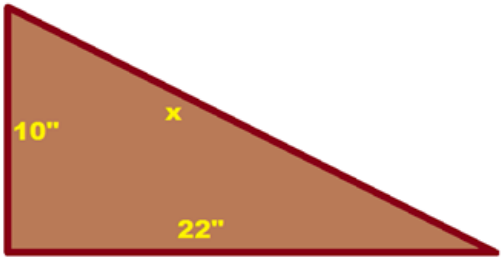
6"

33. The larger square is made up of 16 smaller squares. What is the length of the sides of square "a"?



2.75'

34. Find x



24.17"

35. The hypotenuse of a triangle is √20', and the height is 4'. What is the length of the base?

2"

Based upon the data in this chart, answer these questions:

Age of Students
18
17
20
19
46
16
17
14
19

36. What is the mean? 20.67

37. What is the median? 18

38. What is the mode? 17 & 19

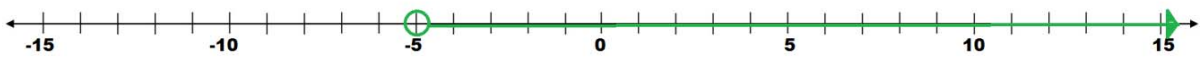
39. Why is there such large a variance in the measures of central tendency? The 46 yr old student is an outlier

40. Please translate into a math expression: twice a number is larger than 12.

$2x > 12$

41. Translate this number line into math, with x as the variable.

$x > -5$



42. Convert 144 to an exponential expression $2^4 * 3^2$

43. Convert $5^3 * 3^2$ to a simple number 1125

44. Simplify this expression: $(2x^2y)(3xy^3)$ $6x^3y^4$