

MasterMath

7th Grade Final Exam

Name _____
Date _____

Closed Book; 90 minutes to complete
CUCG; You may use a calculator.

1. Convert to decimals, fractions or mixed numbers in simplest form:

decimal	fraction or mixed number
.64	16/25
1.25	1 1/4
2.45	2 9/20

2.

Your recipe for cookies requires $2 \frac{5}{8}$ cups of flour. You want to make a double recipe, and have $5 \frac{1}{4}$ cups of flour. How much more flour do you need?

0 cups

3.

You and your friends are doing better in track, as shown by the changes in your times in the 100 meter dash. The table shows the improvement in each of your last races over the previous race. What was the mean improvement?

Friend	Improvement
Jane	-2.15
Mary	-1.22
Estel	-.75
Sophia	-1.68

-1.45

4. Assume $a = -3$, $b = 2$, and $c = -5$. Solve this expressions: $(a/b) * c$

7.5

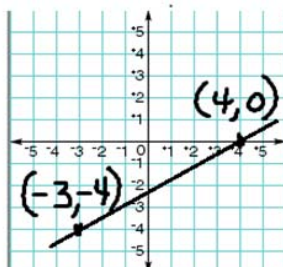
5. Find the next 2 numbers in the pattern: -4, 12, -36,.....

108 -324

6. Complete these statements with either $<$, $>$, or $=$:

	$<$, $>$, or $=$	
2	$>$	$- -5 $
$- -42 $	$<$	25
$ -25 $	$=$	25

7. What is the slope of this line?



4/7

8. Your family took a trip to Colorado. On the 1st day, you traveled 450 miles in 10 hours. On the 2nd day, you traveled 300 miles in 6 hours. For the 2 days of driving, what was your average miles per hour?

46.875

9. You can buy a large, 32 oz bottle of orange juice for \$4.80, or a smaller, 18 oz bottle for \$3.60. What is the unit rate of each?

size	unit rate
18 oz.	.20/oz
32 oz.	.15/oz

10. A number divided by $\frac{1}{8}$ is $\frac{1}{16}$. What is the number?

1/128

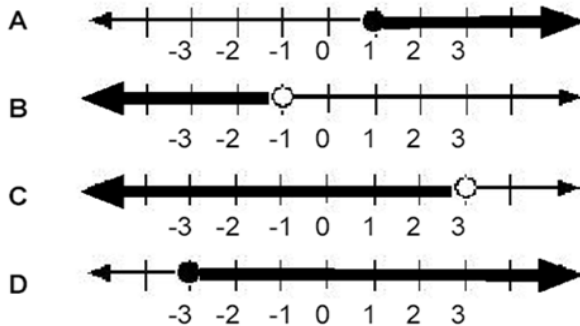
11.

You are $\frac{3}{4}$ as tall as your brother. You are 4'8" tall. How tall is your brother?

6'2 $\frac{2}{3}$ "

12. Which graph shows the solution to $2 - 2x < 0$?

A



A

13.

You had 40 at bats, and your batting average is .475. How many hits did you have?

19

14. The temperature at 10AM in Fairbanks was -12° . Over the next 6 hours, the temperature increased by 25° . What was the temperature at 4PM?

13 $^{\circ}$

15. What ordered pair is 4 units left and 2 units up from $(-2, 4)$?

(-6, 6)

16. Two points on a line are $(2, 2)$ and $(-3, -3)$. Is $(4, -4)$ on the line?

no

17. Two triangles have these dimensions. Are they proportional?

no

Triangle	height	base
1	10	15
2	15	20

Conversions between Systems of Measure

When converting from Customary to Metric, use these approximations.

1 inch = 2.54 centimeters
 1 foot = 0.305 meter
 1 mile = 1.61 kilometers

1 cup = 0.24 liter
 1 gallon = 3.785 liters
 1 ounce = 28.35 grams
 1 pound = 0.454 kilogram

When converting from Metric to Customary, use these approximations.

1 centimeter = 0.39 inch
 1 meter = 3.28 feet
 1 kilometer = 0.62 mile

1 liter = 4.23 cups
 1 liter = 0.264 gallon
 1 gram = 0.0352 ounce
 1 kilogram = 2.204 pounds

18. Can you pour all the water from a 4 liter bottle into a 1 gallon bottle?

no

19. 35.56 cm equals how many inches?

13.87"

20. Indicate whether these equations describe a Direct Variation. You may need to manipulate the equation to put it into standard format.

Equation	Direct Variation?
$10y = 4x$	yes
$y = 2x + 6$	no

21. Do x and y have a Direct Variation, or an Indirect Variation?

x	16	32	28	400
y	4	8	7	100

direct

22. You got 75% or the questions correct on the last math test. You got 36 questions correct. How many questions were on the math test?

48

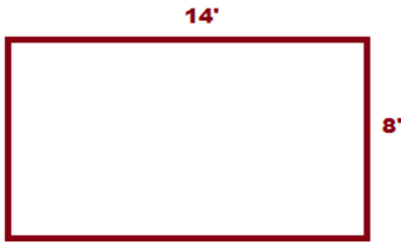
23. There was 6% sales tax added to your purchase price for the dress. With tax, you paid \$58.30 for the dress. What was the pre-tax price?

\$55.00

24. You used to have 45 frogs. Now you have 36 frogs. What percentage increase or decrease in frogs did you experience?

% increase	% decrease
	20%

25. We increase the dimensions of this rectangle by 150%. What is the perimeter of the new rectangle?



66'

26. You paid \$165 for a model plane that was normally \$200. What was your Discount Rate?

17.5%

27. Figures A and B are similar two dimensional figures. Fill in the blanks.

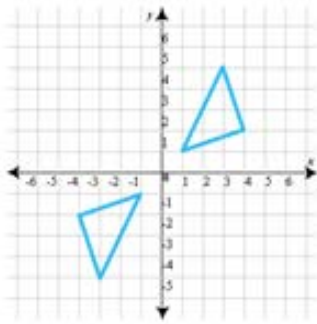
Figure A height	Figure B height	Figure A perimeter	Figure A area	Figure B perimeter	Figure B area
12	18	48	144	72	324
6	15	24	36	60	225
10	1	32.4	50	3.24	.5

28. The architect's drawing of the house is at a scale of 3/8" per foot. On the scale drawing, the garage is 7.5" deep. How deep is the actual garage?

20'

29. What type of transformations are shown here?

rotation



Volume Formulas

Rectangular Prism = bwh

Triangular Prism = Bh

Cylinder = $\pi r^2 h$

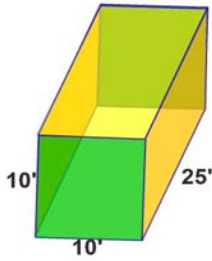
Pyramid = $1/3Bh$

Cone = $1/3Bh$

B = area of base

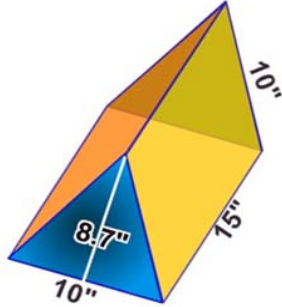
Formulas	
Cone	S.A. = $1/2(2\pi r)l + \pi r^2$
Circle	A = πr^2
Circle	C = $2\pi r$
Rectangle	A = bh
Triangle	A = $1/2 bh$
π	$\pi \approx 3.14$

30. Fill in the blanks for this figure.



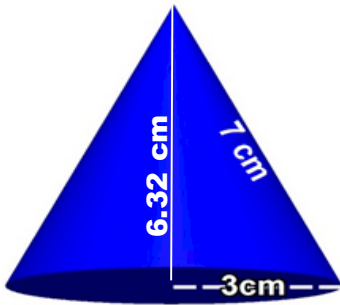
Surface Area	1200 sq ft
Volume	2500 cu ft

31. Fill in the blanks for this figure.



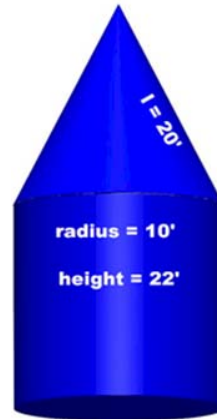
Surface Area	537 sq in
Volume	652.5 cu in

32. Fill in the blanks for this figure.



Surface Area	94.2 sq cm
Volume	99.47 cu cm

33. What is the surface area of this figure?



2323.6 sq ft

34. Fill in the blanks

Height of basketball team in inches	
Stem	Leaf
6	6, 6, 8
7	1, 4, 8, 9, 9, 9
8	0, 1, 3, 4

Mean height	76"
Median height	79"
Mode height	79"

35. Assume you are given one pencil from the pencils below



Probability the pencil is yellow	16.7%
Probability the pencil is not green	83.3%
Probability the pencil is orange or brown	33.3%

36. What is the probability that you roll a 6 on each of the two dice?

2.8%



37. You pick a marble, do not replace it, then you pick a second marble. What is the probability that the first marble is red and the second is green?

1.4%



Are these independent or dependant events?

dependent

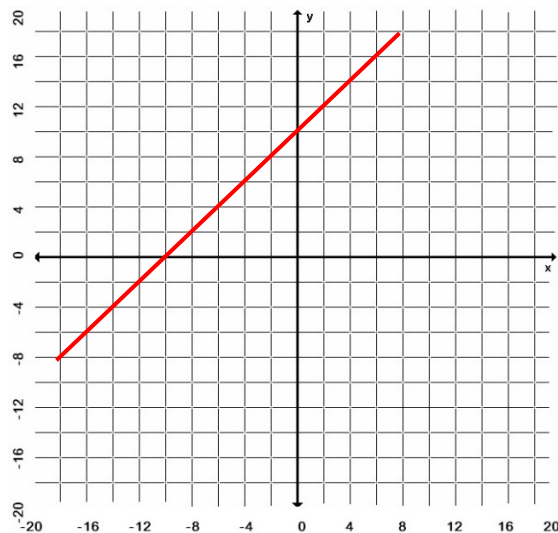
38. Convert this equation to function form: $3x + y = 15$

$y = -3x + 15$

39. Solve for z: $1.5z + 6 = 4.5x - 24$

$z = 3x - 20$

40. Write an equation in slope intercept form that describes the red line.



$y = x + 10$

41. Two points on a line are (3, 6) and (4, 9). What is the slope of the line?

3

42. Solve for v: $6(4.5v + 2) = 66$

v = 2

43. Thirty-six kids are at the dance. There are 4 more girls than boys. How many boys are at the dance?

16

44. You roll the number cube 30 times and get these results



Result	Times die landed on that number
1	4
2	3
3	7
4	6
5	5
6	5

What is the theoretical probability of landing on 4

16.67%

What is the experimental probability of landing on 3

23.33%