

## Grade 6 Mathematics CRT

(No Calculators)

1. The Style Shop at the Mall has the following sign posted in the window:

<b>Shirts</b>	<b>Sweaters</b>	<b>Jeans</b>	<b>Sneakers</b>	<b>Socks</b>
Were \$8.99	Were \$12.99	Originally \$ 21.99	Once \$35.99	Were \$1.99
Now \$6.99	Now \$9.99	On sale: \$15.99	Today \$27.99	Now 99¢

Suppose you have \$50 and want to buy two shirts and a pair of jeans.

- How much will they cost today?
- How much will you save over the original prices? \_\_\_\_\_
- How much change should you receive? \_\_\_\_\_
- What else could you buy with your remaining money? \_\_\_\_\_

\_\_\_\_\_

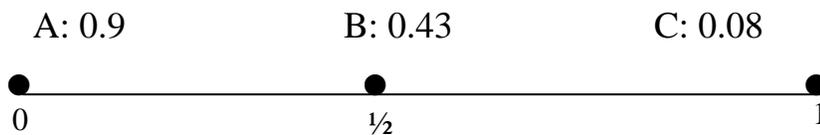
e. Will \$100 be enough to buy sneakers, a sweater, 2 pairs of jeans and 3 pairs of socks? Show your work.

2. The cost of selected camping supplies is shown in the table below.

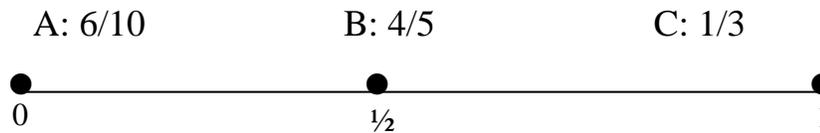
<u>Item</u>	<u>Cost</u>
First Aid Kit	\$ 9.45
Lantern	\$16.50
Sleeping Bag	\$23.50

- How much more expensive is the sleeping bag than the 1<sup>st</sup> aid kit?
- How much change from \$100 should a camper receive if she bought 2 lanterns, 2 First Aid Kits, and one sleeping bag?

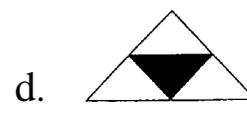
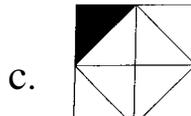
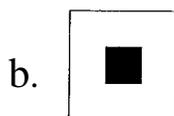
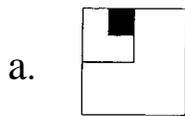
3. Place the following three decimals on the number line below labeling the points A, B and C.



4. Place the following three fractions on the number line below labeling the points A, B and C.



5. What fractional part of the following figures is shaded?



\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

6. Put one digit in each blank so that the three numbers are in order from smallest to largest.
- a. 0.4, 0.\_\_\_\_ \_\_\_\_, 0.5
- b. 0.99, \_\_\_\_ \_\_\_\_, 1.1
7. Put a fraction or mixed number in each blank so that the three fractions are in order from smallest to largest.
- a.  $\frac{1}{2}$ , \_\_\_\_\_,  $\frac{3}{4}$
- b.  $\frac{1}{2}$ , \_\_\_\_\_,  $\frac{2}{3}$
- c.  $4\frac{3}{4}$ , \_\_\_\_\_,  $5\frac{1}{8}$
8. Write a story problem that this table could help you solve:

Phone Rates

First minute: 23¢

Each additional Minute: 12¢

9. I want 2 tennis balls and a used tennis racquet. Tennis balls are sold in cans of 3 balls for \$ 2.98. A good used racquet will cost \$15.75. How much will it cost me to get what I want? Show your work.

10. Ms. Alvarez is submitting her supply request for next year. Paper is purchased by the ream (packages of 500 sheets). She knows that she uses about a ream of white paper each week for making copies for all her classes. She uses between 40 and 50 sheets of colored paper a week. Given that there are 30 weeks of school, how much colored and white paper should Ms. Alvarez request? Show your work and explain.
11. Max, Paul and Olivia found \$467.48 in an old refrigerator at the dump. The police said they could keep the money so they shared it equally. How much money did each person get? Show your work.
12. You can use exactly 7 coins using pennies, nickels, dimes, and quarters to buy 3 different large cans of soda that cost between \$0.75 and \$1.00. Find the cost of each can of soda and show the 7 coins used to purchase each can.

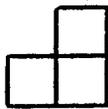
$$\begin{array}{r}
 13. \quad 1 \times 8 + 1 = \quad \underline{\quad 9 \quad} \\
 \quad \quad 12 \times 8 + 2 = \quad \underline{\quad 98 \quad} \\
 \quad \quad 123 \times 8 + 3 = \quad \underline{\quad 987 \quad} \\
 \quad \quad 1234 \times 8 + 4 = \quad \underline{\quad 9876 \quad}
 \end{array}$$

Predict the answer for:  $123,456 \times 8 + 6 =$  \_\_\_\_\_ Explain.

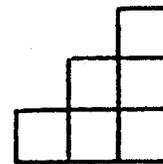
14.



1



$1 + 2 = 3$

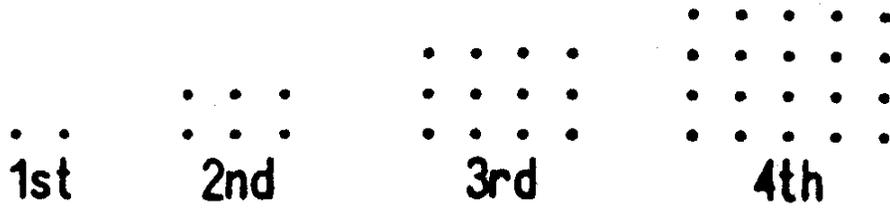


$1 + 2 + 3 = 6$

a. Show the next three numbers \_\_\_\_\_

b. Explain the 10<sup>th</sup> number \_\_\_\_\_

15.



a. Draw dots to show the fifth number.

b. Place the rectangular numbers in the table below. Then fill in the rest of the table.

1 <sup>st</sup>	
2 <sup>nd</sup>	
3 <sup>rd</sup>	
4 <sup>th</sup>	
5 <sup>th</sup>	
6 <sup>th</sup>	
7 <sup>th</sup>	
8 <sup>th</sup>	
⋮	
25 <sup>th</sup>	
⋮	
100 <sup>th</sup>	

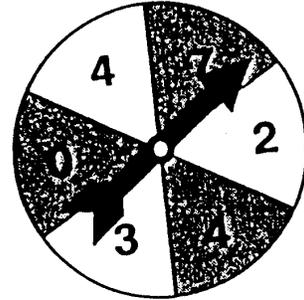
16. Francesca kept a journal for one week of how she spends her time. Listed below are her entries for the time she spent on homework. Create a graph that shows the amounts of time Francesca spent on her homework in one week.

Sunday	10-12 am	8-9 pm
Monday	5-6:30 pm	
Tuesday	4-5 pm	7-8:30 pm
Wednesday	7-9 pm	
Thursday	4-5 pm	7-9:30 pm
Friday	5-6:30 pm	
Saturday	No Homework	

- Create your graph on a separate sheet and attach.
  - Write 2 questions that Francesca's sister could answer by reading your graph.
- c. If Francesca would create a graph for each of the next four weeks, would they be the same or different than the one you created? Explain.

17. If you spin this spinner, what is the probability that the arrow will land on:

- a. A zero? \_\_\_\_\_
- b. An odd number? \_\_\_\_\_
- c. A number greater than 7? \_\_\_\_\_
- d. The number 4? \_\_\_\_\_



18. Six people are standing in line. George was not at either end. Two people were in line after Shana. No one was ahead of Julie. Shana was not next to George. Pam was ahead of Kumi and Rashid. There were three people between Julie and Rashid. Show the order that the six people were in line.

19. Each of the three rectangles below has a length of 7 and a width of 3.



**Show your work**

- a. Find the perimeter of the figure.      b. Find the area of the figure.

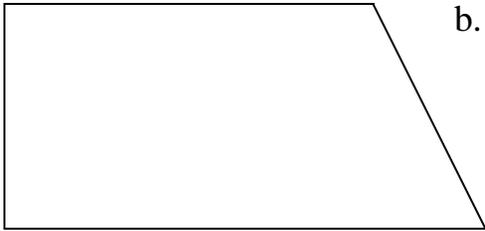
\_\_\_\_\_

\_\_\_\_\_

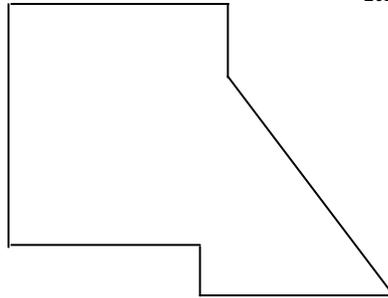
20. Which has the greatest area, a square with a side of 9 cm, a rectangle with a length of 21 cm and a width of 4 cm, or triangle with a base of 10 cm, and a height of 9 cm? Explain how you arrived at your answer.

21. Using the benchmark of a 2 cm x 2 cm square with an area of  $4 \text{ cm}^2$ , estimate the area of the two figures below.

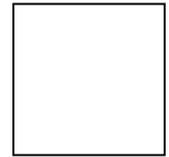
a.



b.

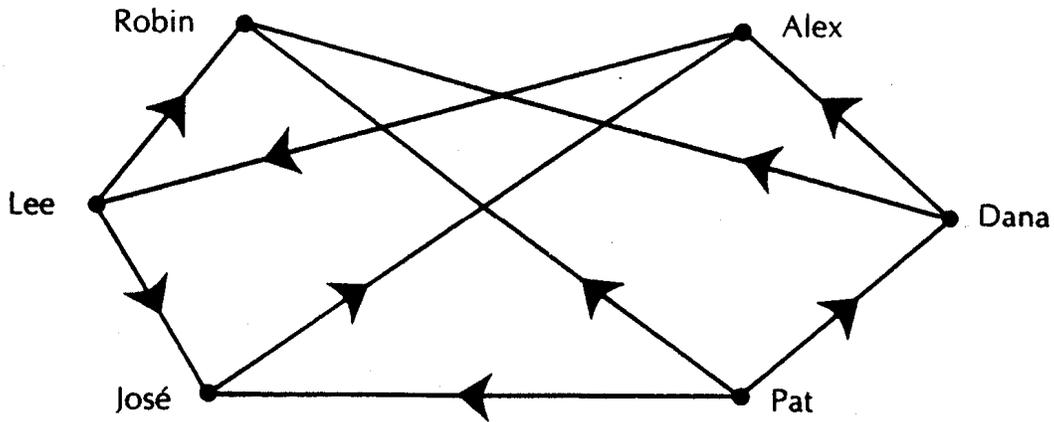


2cm

 $=4 \text{ cm}^2$ 

2cm

22. Six children are in a checkers tournament. The figure below shows the results of the game played so far.



In the picture, an arrow like



Means that Jose won his game against Alex. The arrow always points from the winner to the loser.

1. Who won the game between Pat and Robin? \_\_\_\_\_
2. Which children has Lee already played against? \_\_\_\_\_
3. Which of those games did Lee win? \_\_\_\_\_
4. How many games have been played by the children so far? \_\_\_\_\_  
Explain how you know.

23. Make a table showing the current standings of the six children. Put the player who has won the most games in first place, at the top. If two players are tied, they can be listed in either order.

24. The tournament will be over when everybody has played everybody else exactly once. How many more games need to be played to finish the tournament? \_\_\_\_\_ Explain your answer.

25. Dana and Lee have not played yet. Who do you think will win when they play? \_\_\_\_\_ Explain why you think so.

26. This question requires you to show your work and explain your reasoning for each of the following.

Janet has two Kittens, Emma and Winnie. Emma consumes  $\frac{3}{4}$  of a can of cat food each day and Winnie consumes  $\frac{1}{2}$  of a can of cat food each day. Cat food costs \$1.00 for three cans. Show your work.

a. How much will it cost Janet for a 60-day supply of cat food for her two cats? Explain how you arrived at your answer.

b. Compare the cost of cat food for a 29-day supply, a 30-day supply and a 31-day supply. Explain why these changes occur.

c. How would you determine the cost of a supply of cat food for any unknown number of days?

27. Circle the item that does NOT belong in the list below?

- a.  $4000 + 500 + 50 + 17$
- b. 4 thousands + 50 hundreds + 6 tens + 7 ones
- c.  $4000 + 500 + 60 + 7$
- d. 3 thousands + 15 hundreds + 6 tens + 7 ones

Explain why your choice does not belong.

28. Juanita uses a “shortcut” to add in her head. To find  $\$8.99 + \$3.48$ , she thinks:

$$\begin{array}{rcl}
 \$8.99 & \longrightarrow & \$9.00 - 1\text{¢} \\
 \$3.48 & \longrightarrow & \$3.50 - 2\text{¢} \\
 \hline
 \text{and gets} & \longrightarrow & \$12.50 - 3\text{¢} \text{ or } \$12.47.
 \end{array}$$

Write out the steps, using Juanita’s “shortcut” to show how she would add:

$$\$12.98 + \$6.99$$

Explain why Juanita’s “shortcut” gives the correct answer.

29. What is true about all the numbers in the box below? \_\_\_\_\_

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4, 12, 6, 8, 10, 42, 22, 78, 104
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30. Write a number greater than 104 that would belong in the box.

31. What is true about all the numbers in the box below? \_\_\_\_\_

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45, 415, 295, 195, 705, 205, 315, 75, 105
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32. Write a number greater than 705 that would belong in the box.

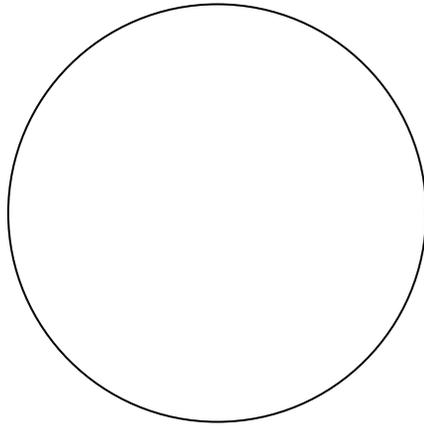
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33. The marine biologist sampled 450 starfish. She found that 25% of them were over 60 grams in weight.

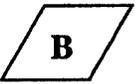
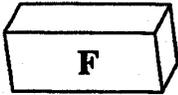
a. What fractional part of the sample was over 60 grams? \_\_\_\_\_

b. How many starfish in the sample were over 60 grams? \_\_\_\_\_

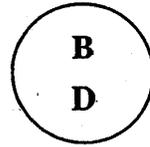
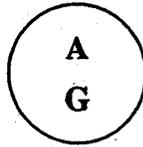
c. Draw and shade a part on the circle to show the amount of starfish in the sample that weighed more than 60 grams.



34. Write the name of each figure on the line below it.

a)		_____
b)		_____
c)		_____
d)		_____
e)		_____
f)		_____
g)		_____

Describe the classification rule used to sort four of the figures at the left into two sets.



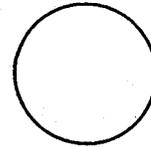
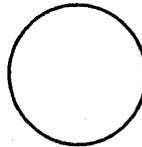
\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Choose some of the figures and sort them into two sets using a different rule. Write their letters in the circles. Describe your rule.



\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

35. A friend of yours says that  $\frac{3}{8} + \frac{4}{8} = \frac{7}{16}$ . **Draw** a diagram and **write** the explanation you would use to show that he is wrong.

36. Is the sum  $\frac{2}{8} + \frac{5}{8}$  closer to  $\frac{1}{2}$  or closer to 1? \_\_\_\_\_ Explain.

37. Another friend says that  $0.8 + 0.07 = 0.15$ , but is not sure if this is correct. **Draw** a diagram and **write** an explanation that would convince your friend what the correct answer is.

38. To the nearest whole number, estimate each answer, then explain how you made your estimate.

	<b>Problem</b>	<b>Estimate</b>	<b>Explanation</b>
1.	$4 \frac{1}{4} + 3 \frac{3}{8}$		
2.	$6.0 - 1.9$		
3.	$2 \frac{7}{8} + 3 \frac{15}{16}$		
4.	$8.01 + 12.9$		
5.	$20 \frac{3}{4} - \frac{1}{8}$		

39. Fill in the **next three** numbers in each pattern and complete the equation that can be used to extend each pattern.

a.

X	1	2	3	4	5	6
Y	2	4	6			

Equation:  $Y =$

b.

A	1	2	3	4	5	6
B	2	3	4			

Equation:  $B =$

40. Elaina started a table to show the number of hours she worked and the amount she was paid each day for a week.

Day	Hours (H)	Pay (P)
Monday	2	\$11.00
Tuesday	3	\$16.50
Wednesday	2 1/2	\$13.75
Thursday	1 1/2	
Friday		\$27.50

- a. How much per hour is Elaina paid? \_\_\_\_\_
- b. Complete the equation that can be used to calculate her pay.  
Equation:  $P =$  \_\_\_\_\_
- c. According to the table, how much should she be paid on Thursday? \_\_\_\_\_
- d. According to the table, how many hours did she work on Friday?  
\_\_\_\_\_

41. Alida has 10 feet of purple yarn. How many smaller pieces, each

2  $\frac{1}{2}$  feet long, can she cut? \_\_\_\_\_  
Explain using pictures and/or words.

42. Conrad cut  $\frac{1}{5}$  of the party cake for himself. He served  $\frac{1}{2}$  of what was left to his friends. How much of the cake did his friends get? Show your work using pictures and/or words.

43. Trey needs  $4\frac{1}{2}$  gallons of gasoline to fill his moped's tank. He uses 3 tank fulls each month. He pays about \$1.25 per gallon for the gasoline. How much does it cost him each month for gasoline? Show your work.

44. Sosha has a recipe that makes 16 brownies. It needs  $2\frac{1}{2}$  cups of flour, 2 eggs, and 1 cup of sugar. If Sosha decides to make only 8 brownies, what will her recipe be? Show your work.

45. Here are some equivalent expressions for the numbers 2, 5, and 10.  
Record each expression in the appropriate place in the table.

$$\frac{5 \times 3 - 5}{2} \quad 5 \times (49 - 47) \quad 2^2 + 1 \quad (28 - 14) \div 7$$

$$50\% \times 30 - 5 \quad \frac{2 \times 12 \times 5 \div 6}{10} \quad 1/4 \times 44 - 1$$

Equivalent Expressions		
2	5	10

46. Add to the table. Write **two more** expressions that involve more than one operation for **each** number.