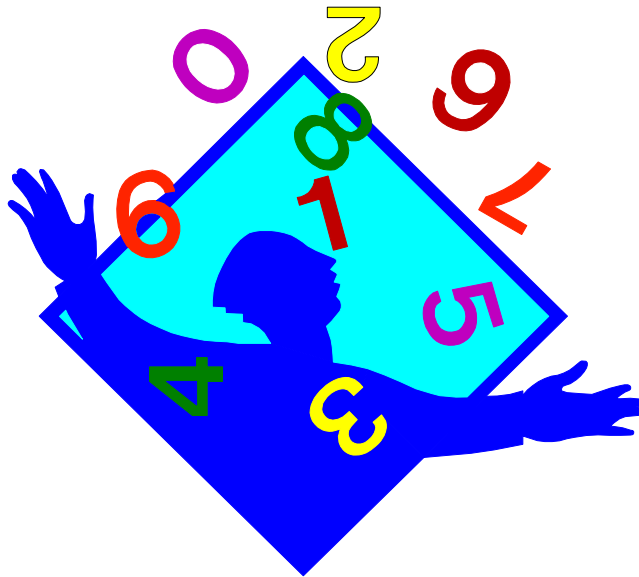


MATHEMATICS
7TH GRADE
BENCHMARK TEST



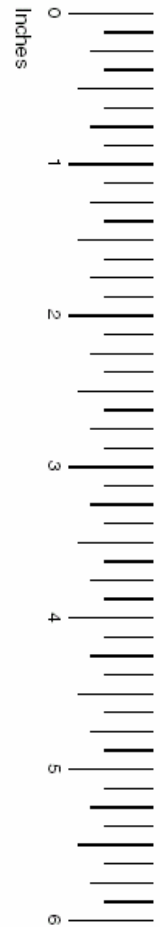
Third Testing Period
March 3-7, 2003

Grade 7

Mathematics Chart



LENGTH	
Metric	Customary
1 kilometer = 1000 meters	1 mile = 1760 yards
1 meter = 100 centimeters	1 mile = 5280 feet
1 centimeter = 10 millimeters	1 yard = 3 feet
	1 foot = 12 inches
CAPACITY AND VOLUME	
Metric	Customary
1 liter = 1000 milliliters	1 gallon = 4 quarts
	1 gallon = 128 ounces
	1 quart = 2 pints
	1 pint = 2 cups
	1 cup = 8 ounces
MASS AND WEIGHT	
Metric	Customary
1 kilogram = 1000 grams	1 ton = 2000 pounds
1 gram = 1000 milligrams	1 pound = 16 ounces
TIME	
1 year = 365 days	
1 year = 12 months	
1 year = 52 weeks	
1 week = 7 days	
1 day = 24 hours	
1 hour = 60 minutes	
1 minute = 60 seconds	



Continued on next page

Grade 7 Mathematics Chart

Perimeter	square	$P = 4s$
	rectangle	$P = 2l + 2w$ or $P = 2(l + w)$
Circumference	circle	$C = 2\pi r$ or $C = \pi d$
Area	square	$A = s^2$
	rectangle	$A = lw$ or $A = bh$
	triangle	$A = \frac{1}{2}bh$ or $A = \frac{bh}{2}$
	trapezoid	$A = \frac{1}{2}(b_1 + b_2)h$ or $A = \frac{(b_1 + b_2)h}{2}$
	circle	$A = \pi r^2$
Volume	cube	$V = s^3$
	rectangular prism	$V = lwh$ or $V = Bh^*$
	cylinder	$V = \pi r^2 h$ or $V = Bh^*$
<i>*B represents the area of the Base of a solid figure.</i>		
Pi	π	$\pi \approx 3.14$ or $\pi \approx \frac{22}{7}$

Read each problem and select the best answer. Use any available space for scratchwork.

1. What is the next number in this pattern?
- 50, 46, 42, 38, 34,
- (A) 33
(B) 32
(C) 31
(D) 30
2. Charlie is making a scale model of his house. His house is 42 feet long. In the model it is 14 inches long. The actual chimney is 25 feet tall. How tall should Charlie make the chimney in his model?
- (A) 3 inches
(B) $6\frac{1}{4}$
(C) $7\frac{1}{2}$
(D) $8\frac{1}{3}$
3. A golden rectangle is a rectangle with a ratio of width to length of 1:1.6. A landscape architect wants to make a pool of water that is 20 feet wide into a golden rectangle. How long will the pool be?
- (A) 8 ft
(B) 12 ft
(C) 16 ft
(D) 32 ft
4. On a school field trip, Ms. Sanchez is responsible for 39 of the 204 students on the trip. She estimates that she is responsible for about 20% of the students on the trip. Is her estimate reasonable? Why or why not?
- (A) No, because $204/39$ can be rounded to $200/40$, which equals 5. She is responsible for about 5% of the students.
(B) No, because $204/20$ can be rounded to $200/20$, which equals 10. She is responsible for about 10% of the students.
(C) Yes, because $39/204$ can be rounded to $40/200$, which equals $1/5$, or 20% of the students.
(D) No, because $39/204$ can be rounded to $50/200$, which equals $1/4$, or 25%. She is responsible for about 25% of the students.

5. In the equation $3x + 7 = 19$, what is the value of x ?
- (A) $x = 3$
 (B) $x = 4$
 (C) $x = 5$
 (D) $x = 6$
6. Which problem situation matches the equation below?
- $$\frac{59 + 74 + 62 + x}{4} = 70$$
- (A) Luis has three tanks of fish: one with 59 fish, one with 74 fish, and one with 62 fish. Find x , the average number of fish Luis has per tank.
- (B) Norma has 5 flavors of jelly beans. She has 59 lime, 74 cherry, 62 lemon, and 70 orange, but she hasn't counted the cinnamon jelly beans yet. Find x , the number of cinnamon jelly beans that Norma has.
- (C) There are four buildings next to a park. The buildings are 59 feet tall, 74 feet tall, 62 feet tall, and x feet tall. If the sum of the heights of the buildings is 70 feet, find x the height of the fourth building.
- (D) Julio is making phone calls for a telemarketing company. In the past three days he has made 59 calls, 74 calls, and 62 calls. He has to make an average of 70 calls per day. Find x , the number of calls he needs to make on the fourth day to bring his average to 70.
7. How should "seven times the sum of a number and 3" be written as an algebraic expression?
- (A) $7 \times 3n$
 (B) $7 \times 3 + n$
 (C) $7(n + 3)$
 (D) $7n + 3$
8. Jose's company ordered a year's supply of computer paper, and it was all delivered at one time in 200 boxes. Jose needs to figure out if it will all fit in the empty storage room. The rectangular storage room is 10 feet wide by 9 feet long by 10 feet tall, and the computer paper came in boxes that are 2 feet by 1.5 feet by 1 foot. How should Jose figure out if all the boxes will fit?
- (A) He should find the volume of one box and multiply it by 200 to find the total amount of space the boxes will take up. Then he should find the volume of space in the storage room and compare the two values.
- (B) He should find the area of one box and multiply it by 200 to find the total amount of space the boxes will take up. Then he should find the area of the storage room and compare the two values.
- (C) He should find the area of the storage room and divide it by 200. Then he should find the area of one box and compare the values.
- (D) He should find the volume of space in the storage room and multiply it by the volume of boxes. Then he should compare that value to 200.

9. A scientist is studying the nesting habits of an endangered bird. She finds 5 nests and measures the height of each nest above the ground. The heights of the nests are 21 meters, 24 meters, 17 meters, 27 meters, and 22 meters. Now she wants to draw some conclusions. From the data she has collected, she can determine the—

- (A) mean height of the nests
- (B) number of eggs per nest
- (C) survival rate for young birds
- (D) average size of the birds' eggs

10. A round wading pool has a radius of 2 feet and a height of 1 foot. If the pool is filled to the top, how much water will it hold?

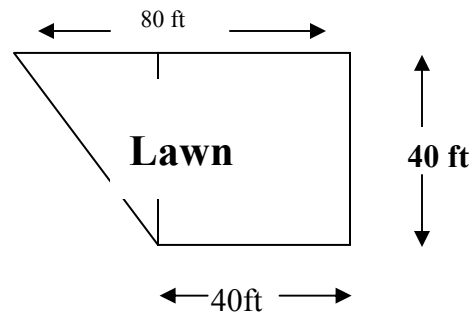
Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.

				.			
0	0	0	0		0	0	0
1	1	1	1		1	1	1
2	2	2	2		2	2	2
3	3	3	3		3	3	3
4	4	4	4		4	4	4
5	5	5	5		5	5	5
6	6	6	6		6	6	6
7	7	7	7		7	7	7
8	8	8	8		8	8	8
9	9	9	9		9	9	9

11. An artist needs to frame a painting, and the frame she has selected is 3 inches wide. If the original painting is 6 inches by 12 inches, what is the total area of the framed painting, including frame?

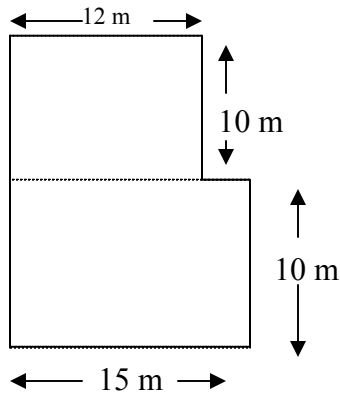
- (A) 216 in.²
- (B) 135 in.²
- (C) 60 in.²
- (D) 48 in.²

12. Pravina needs to know how big her lawn is so that she can figure out how much lime to spread on it. What is the area of her lawn, as shown below?



- (A) 1,600 sq. ft.
- (B) 1,656 sq. ft.
- (C) 2,400 sq. ft.
- (D) 3,200 sq. ft.

13. The community swimming pool is L-shaped and is made up of two separate rectangles. One rectangle is 15 m by 10 m. The other rectangle is 10 m by 12 m. What is the area of the pool?

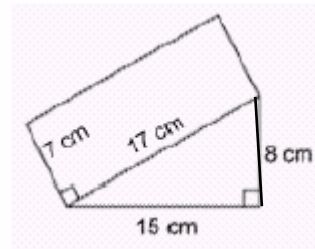


- (A) 150 m^2
 (B) 240 m^2
 (C) 250 m^2
 (D) 270 m^2

14. How many square yards of carpet would you need all together for a rectangular room that is 4 yards by 5 yards and a rectangular hallway that is 1 yard by 4 yards?

- (A) 14 sq. yd.
 (B) 24 sq. yd.
 (C) 96 sq. yd.
 (D) 216 sq. yd.

15. What is the area of this figure?



- (A) 179 cm^2
 (B) 187 cm^2
 (C) 196 cm^2
 (D) 23 cm^2

16. Mariah lives $\frac{9}{10}$ mile from her school.

She walks to school and back every school day. Which expression represents how far she walks in 5 school days?

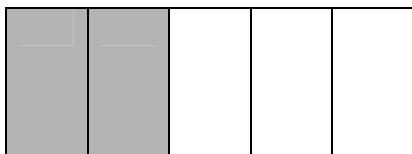
- (A) $5 \times \frac{9}{10}$
 (B) $\frac{9}{10} \times 2 \times 5$
 (C) $2 \times \frac{9}{10}$
 (D) $\frac{9}{10} \times 2 \div 5$

17. Renda has recorded her scores on the first eight weekly math quizzes she has taken this year.

Week	Score
1	87
2	90
3	72
4	69
5	77
6	84
7	86
8	85

When determining Renda's grade for her report card, the math teacher will ignore the quiz score that is least similar to Renda's usual performance. Which test score will the teacher probably ignore?

- (A) 90
 (B) 87
 (C) 77
 (D) 69
18. What percentage of the figure is shaded?



- (A) 20 %
 (B) 25 %
 (C) 40 %
 (D) 45 %

19. In science class, 8 teams of students experimented to see how long a candle continued to burn after it was covered with a glass. In the experiment, the candles used by each team were identical, but each glass was different height and shape. The results of the experiment are shown below.

Team	1	2	3	4	5	6	7	8
Burning Time of Candle (seconds)	13	6	9	17	3	12	20	5

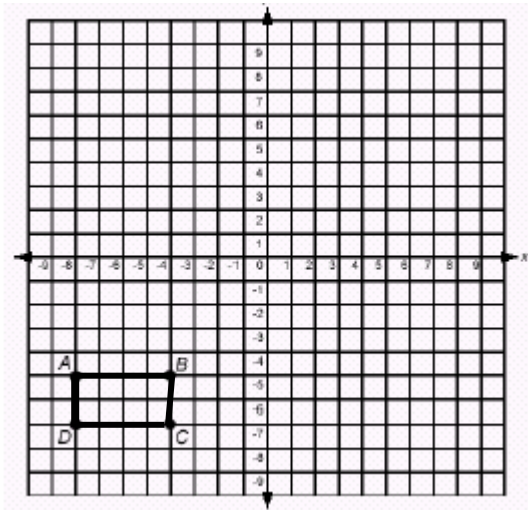
In the experiment, which team probably used the glass with the greatest volume?

- (A) Team 1
 (B) Team 4
 (C) Team 5
 (D) Team 7
20. The state of Wyoming has a population of about 495,000 and an area of about 98,000 square miles. What is the average number of people per square mile in Wyoming? Round the answer to the nearest tenth.

Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.

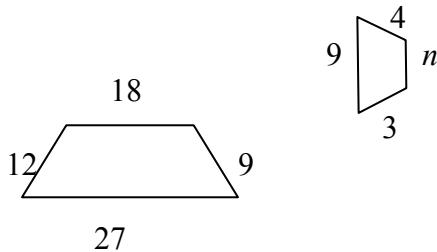
				.			
Ⓐ	Ⓑ	Ⓒ	Ⓓ		Ⓐ	Ⓑ	Ⓒ
①	①	①	①		①	①	①
②	②	②	②		②	②	②
③	③	③	③		③	③	③
④	④	④	④		④	④	④
⑤	⑤	⑤	⑤		⑤	⑤	⑤
⑥	⑥	⑥	⑥		⑥	⑥	⑥
⑦	⑦	⑦	⑦		⑦	⑦	⑦
⑧	⑧	⑧	⑧		⑧	⑧	⑧
⑨	⑨	⑨	⑨		⑨	⑨	⑨

21. What steps should be used to translate rectangle ABCD so that vertex B is moved from point $(-4, -5)$ to point $(3, 2)$?



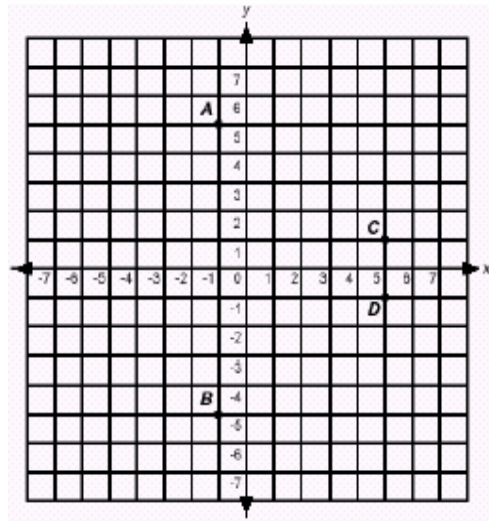
- (A) Move each vertex 7 units to the right and 7 units up.
 (B) Move each vertex 1 unit to the right and 3 units up.
 (C) Move each vertex 7 units up and 3 to the right.
 (D) Move each vertex 3 units up and 2 units to the right.

22. The figures below are similar. What is the length of side n ?



- (A) 3
 (B) 6
 (C) 9
 (D) 12

23. What point is located at $(-1, 5)$?



- (A) Point A
 (B) Point B
 (C) Point C
 (D) Point D

24. Mr. Kelly's house has a rectangular front door that is 4 ft wide and 7 ft high. He has built a playhouse for his children with a similar rectangular front door that is $3\frac{1}{2}$ feet high. What is the similarity ratio of the house door to the playhouse door?

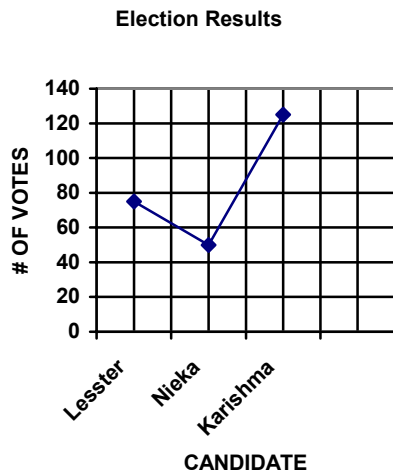
- (A) 2:3
 (B) 2:1
 (C) 4:3
 (D) 1:2

25. Lester, Nieka, and Karishma all ran for class president. Below is a table showing how many votes each candidate received.

Candidate	Votes
Lester	75
Nieka	50
Karishma	125

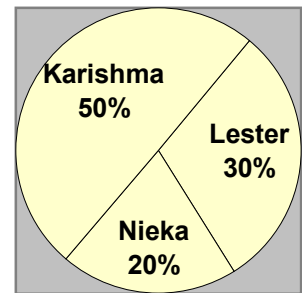
Which graph shows the best way to display the data so that it shows the percentage of votes each candidate received?

(A)

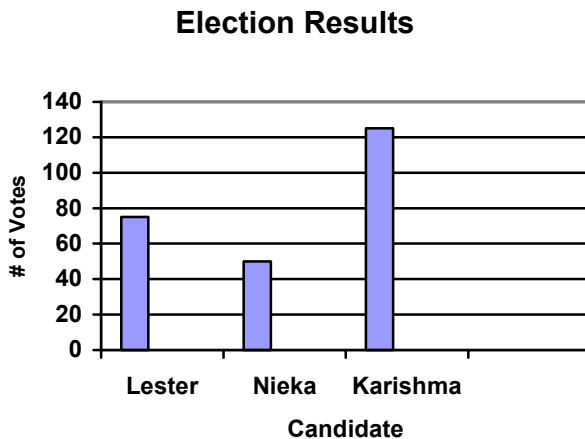


(C)

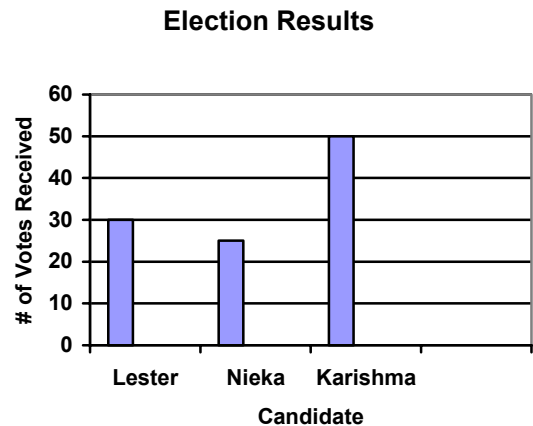
Election Results



(B)



(D)



END OF EXAMINATION