VIRGINIA STANDARDS OF LEARNING

Spring 2009 Released Test

GRADE 6
MATHEMATICS

Form M0119, CORE 1

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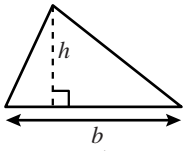
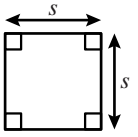
Grade 6 Mathematics Formula Sheet

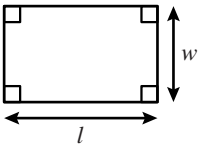
Geometric Formulas



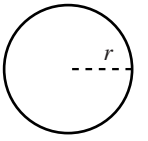
$A = \frac{1}{2}bh$



$p = 4s$
$A = s^2$



$p = 2l + 2w$
$A = lw$



$C = 2\pi r$
$A = \pi r^2$

Pi

$\pi \approx 3.14$

$\pi \approx \frac{22}{7}$

Abbreviations

milligram	mg
gram	g
kilogram	kg
milliliter	mL
liter	L
kiloliter	kL
millimeter	mm
centimeter	cm
meter	m
kilometer	km
square centimeter	cm^2
cubic centimeter	cm^3

ounce	oz
pound	lb
quart	qt
gallon	gal.
inch	in.
foot	ft
yard	yd
mile	mi.
square inch	sq in.
square foot	sq ft
cubic inch	cu in.
cubic foot	cu ft

area	A
perimeter	p
circumference	C

year	yr
month	mon
hour	hr
minute	min
second	sec

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Directions

Read each question and choose the best answer.

SAMPLE

Which is less than 1.064?

A 1.159
B 1.059
C 1.171
D 1.071

1 $\mathbf{3.2 \div 0.2} =$

A 2
B 16
C 64
D 160

2 **Which is equal to** $\mathbf{\frac{3}{2} \times \frac{3}{4}}$**?**

F 2

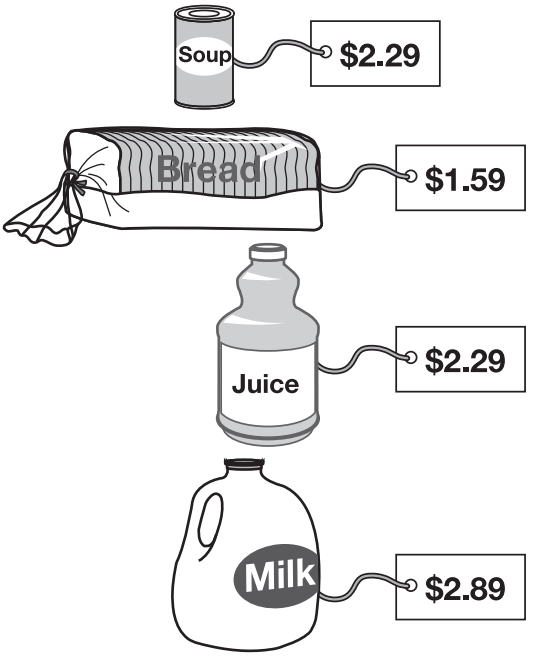
G $1\frac{1}{8}$

H $\frac{1}{2}$

J $\frac{1}{8}$

GO ON

3 The prices of the items in Alana's grocery cart are pictured.



Alana has $10.00 to spend on the items. Which list of items could Alana purchase with her $10.00 ?

A 4 cans of soup, 1 loaf of bread, and 1 bottle of juice

B 1 loaf of bread, 3 bottles of juice, and 2 cans of soup

C 1 loaf of bread, 3 cans of soup, and 1 container of milk

D 2 cans of soup, 1 bottle of juice, and 1 container of milk

4 Antonio moved boxes that weighed 26.5 pounds, 34.2 pounds, and 45.8 pounds. Which is *closest* to the number of pounds Antonio moved all together?

F 100 pounds

G 107 pounds

H 115 pounds

J 200 pounds

5 **Greg and Sam ordered a pizza for lunch. Greg ate $\frac{3}{4}$ of the pizza, and Sam ate $\frac{1}{8}$ of the pizza. How much of the whole pizza was eaten by Greg and Sam?**

A $\frac{1}{3}$

B $\frac{1}{2}$

C $\frac{5}{8}$

D $\frac{7}{8}$

6 **Carl needs $2\frac{2}{3}$ cups of flour to make a certain cake. He only has $\frac{3}{8}$ cup of flour in the pantry. How many more cups of flour does Carl need for the cake?**

F $2\frac{1}{24}$ cups

G $2\frac{1}{5}$ cups

H $2\frac{7}{24}$ cups

J $2\frac{5}{11}$ cups

7 Mrs. Chan purchased 2 oranges at lunch every day for 9 days. The oranges cost $0.49 each. To the nearest dollar, how much did Mrs. Chan pay for all the oranges?

A $1
B $5
C $9
D $18

8 Alexis needs to buy 300 sheets of construction paper. The office supply store sells construction paper in the following packages.

Paper Purchase

Package	Number of Sheets	Price
W	50	$4.50
X	75	$5.10
Y	100	$10.75
Z	150	$12.25

Which of the following is the *least* expensive way for Alexis to buy 300 sheets of construction paper?

F 6 packages of paper *W*
G 4 packages of paper *X*
H 3 packages of paper *Y*
J 2 packages of paper *Z*

9 $0.3\overline{)0.312}$

A 14

B 1.4

C 1.04

D 0.104

10 **Karl earns $8.50 per hour at his part-time job. Last week he worked 18 hours. This week he worked 14 hours. What is the total amount of money that Karl earned for working these two weeks?**

F $119

G $153

H $261

J $272

STOP

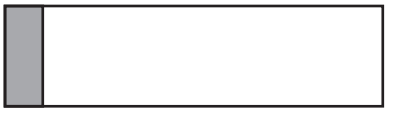
Do not turn the page until you are told.

11 Which of the following is the greatest common factor of 6 and 10 ?

A 2
B 10
C 30
D 60

12 Which of the following figures most closely shows 25% shaded?

F



G

H

J

13 Which of the following is true?

A $^{-}10 > {}^{-}20$
B $^{-}50 > 45$
C $^{-}30 < {}^{-}35$
D $25 < {}^{-}45$

14 Which statement best describes the number 22 ?

F It is a composite number.
G It is a prime number.
H It is both a prime and a composite number.
J It is neither a prime nor a composite number.

15 Which is true?

A $2\frac{2}{3} < 2\frac{1}{2}$

B $2\frac{3}{5} > 2\frac{2}{3}$

C $2\frac{3}{4} < 2\frac{2}{3}$

D $2\frac{2}{3} > 2\frac{3}{10}$

16 Which number is equivalent to 30%?

F 0.03

G $\frac{3}{10}$

H $\frac{1}{3}$

J 30.0

17

Calculators in Mrs. Camp's Class

Color	Number
Red	14
Blue	8
Yellow	6

According to the table, which shows the ratio of the number of red calculators to the number of blue calculators?

A $\frac{14}{8}$

B $\frac{8}{14}$

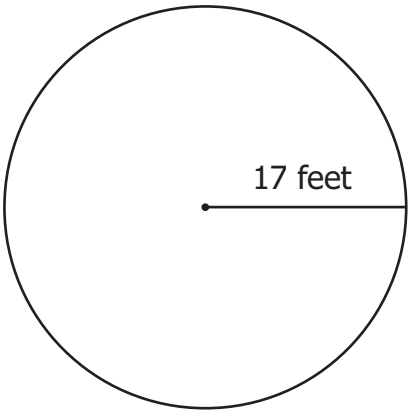
C $\frac{14}{28}$

D $\frac{8}{20}$

18 Which are multiples of both 4 and 6 ?

F 20 and 24
G 18 and 20
H 12 and 18
J 12 and 24

19 Logan needs to order a cover for his swimming pool. The circular swimming pool has a radius of 17 feet.



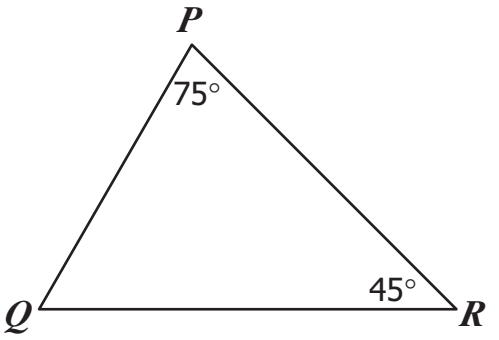
Which is *closest* to the number of square feet needed to completely cover the pool?

A 106.76
B 289
C 907.46
D 1,156

20 Andrea is buying a rectangular rug that is 3 feet wide and 4 feet long. What is the total area that the rug will cover?

F 12 square feet
G 14 square feet
H 24 square feet
J 28 square feet

21



Which correctly describes triangle PQR ?

A Obtuse

B Acute

C Equilateral

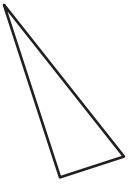
D Isosceles

22 Which appears to be an obtuse triangle?

F

G

H

J 

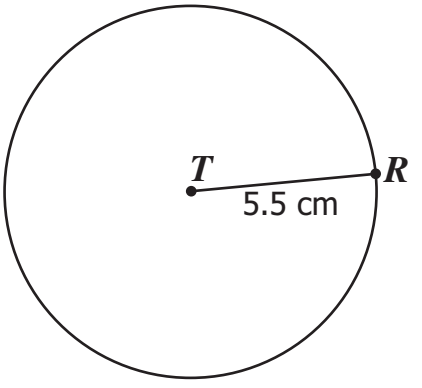
23 Which is equivalent to 1 liter?

A 25 milliliters
B 100 milliliters
C 250 milliliters
D 1,000 milliliters

24 Which of the following measurements is *closest* to 1 ton?

F 1,002 pounds
G 1,902 pounds
H 1,998 pounds
J 2,505 pounds

25 In the circle shown, Point T is the center of the circle and Point R is on the circle.

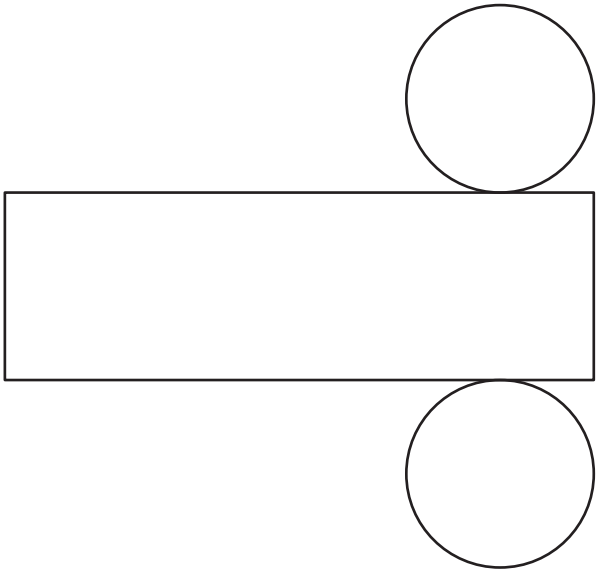


Which is closest to the circumference of circle T ?

A 15.70 cm
B 17.27 cm
C 31.40 cm
D 34.54 cm

GO ON

26 Mrs. Meyer folded the following figure to make a three-dimensional shape.



If no parts overlapped and the entire figure was used, which *best* represents the shape Mrs. Meyer made?

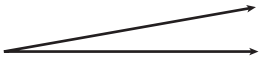
F Cone
G Rectangular prism
H Square pyramid
J Cylinder

27 Susan has a rectangular garden that measures 20 feet by 10 feet. What is the *least* amount of fencing that she needs to buy in order to enclose the garden?

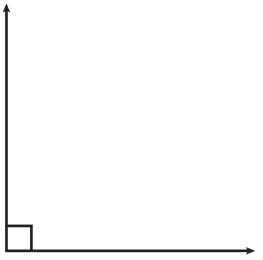
A 30 feet
B 60 feet
C 80 feet
D 200 feet

28 Which of the following angles measures 180°?

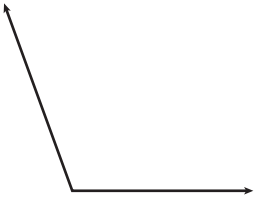
F



G



H



J

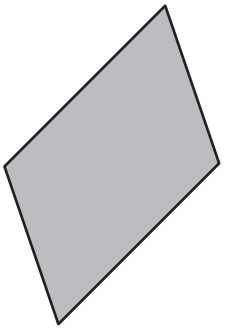
29 Daryl can jump $2\frac{1}{2}$ yards. Sarah can jump 8 feet, and Michelle can jump 72 inches. Which statement is true?

A Sarah jumps the farthest.
B Daryl jumps the farthest.
C Michelle jumps farther than Daryl.
D Sarah and Michelle jump the same distance.

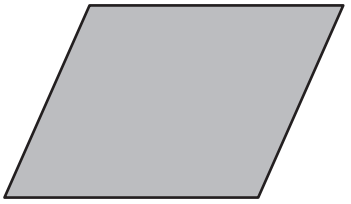
30 Pictured is a figure from the cover of Kreig's CD case.

Four more figures from Kreig's CD case are shown below. Which appears to be congruent to the figure above?

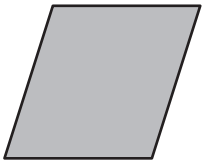
F



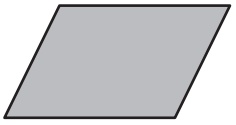
G



H



J



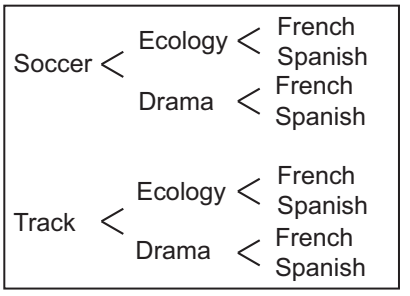
31 **Students at Wilson Middle School must choose one elective from each group in the table.**

Middle School Electives

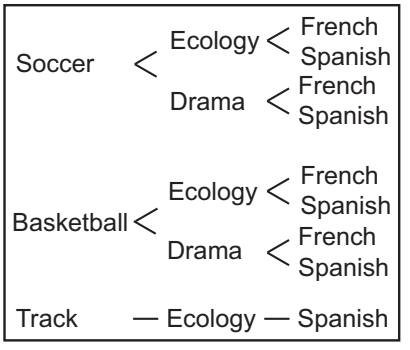
Sport	Clubs	Language
Soccer	Ecology	French
Basketball	Drama	Spanish
Track		

Which tree diagram shows all possible combinations of choosing one elective from each group?

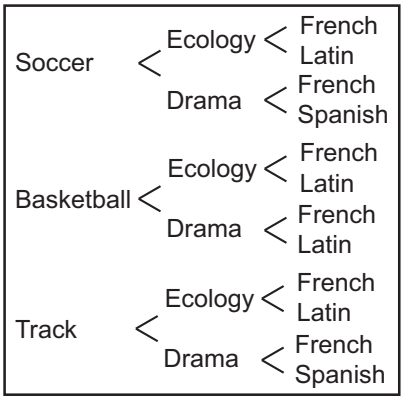
A



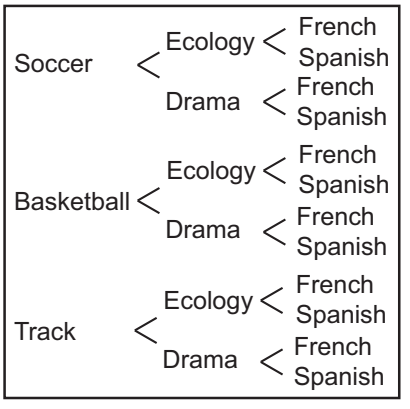
B



C



D



GO ON

32 A deck of 50 cards for a math game has 9 red cards, 13 blue cards, 18 green cards, and 10 yellow cards. What is the probability that a card randomly selected from the deck will be a blue card?

F 13%
G 26%
H 74%
J 87%

33 Look at the table.

Lunches Sold Last Week

Day	Number Sold
Monday	121
Tuesday	111
Wednesday	108
Thursday	111
Friday	139

What was the mean number of lunches sold last week?

A 105
B 111
C 118
D 130

34 This stem-and-leaf plot shows the high temperatures in Richmond for two weeks.

High Temperatures in Richmond (°F)

Stem	Leaf
5	0 7 7 9
6	4 8 8 9
7	1 3 6
8	0 0 2

Key
9|2 means 92

Which of the following is a *true* conclusion based on the data in the stem-and-leaf plot?

F The range of the temperatures was 22°F.

G The temperature was 80°F for 3 days.

H The temperature was at least 57°F every day.

J The temperature was greater than 70°F exactly 6 times.

35 What is the median of the following list of numbers?

33, 21, 42, 19, 42, 12

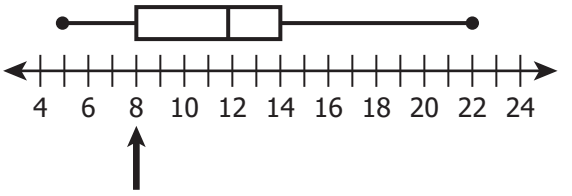
A 26

B 27

C 30

D 42

36 Holly drew a box-and-whisker plot to display the number of days her classmates were out of town over the summer.



The arrow is most likely pointing to the —

F lower extreme
G upper extreme
H upper quartile
J lower quartile

37 Look at the table.

Miles Driven by Pizza Trucks for Seven Days

Day	Number of Miles Driven
Thurs.	485
Fri.	392
Sat.	373
Sun.	287
Mon.	319
Tues.	287
Wed.	304

What is the range for the number of miles driven?

A 181
B 198
C 287
D 319

GO ON

38 **Ivan has a fair number cube numbered 1 through 6. He will roll the cube one time. What is the probability that the number shown on the top face is a 2 ?**

F $\frac{1}{6}$

G $\frac{1}{3}$

H $\frac{2}{3}$

J $\frac{5}{6}$

39 **The first four figures in a pattern are shown.**

If the pattern continues by adding another row and column of dots to the previous group, how many dots will be in the next group?

A 30

B 35

C 36

D 40

GO ON

40 Which shows 72,000,000 written in scientific notation?

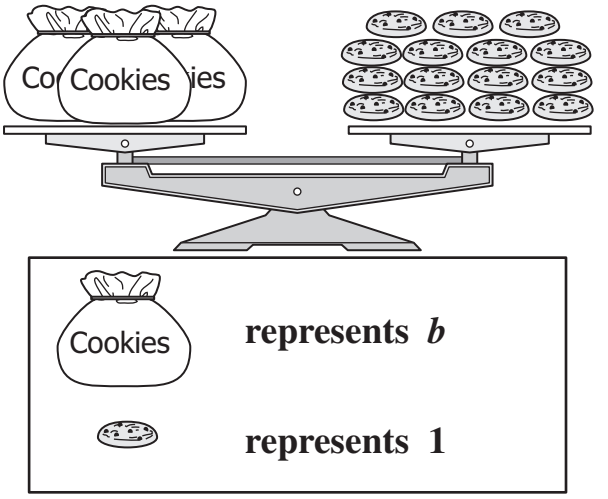
F 0.72×10^6

G 7.2×10^6

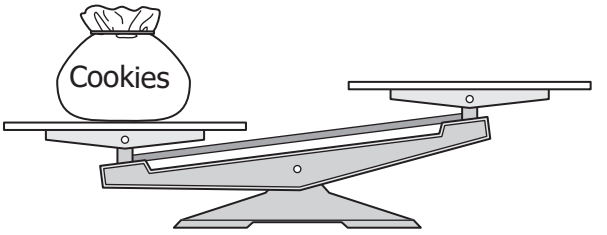
H 7.2×10^7

J 72×10^7

41 The scale below is balanced.



Using the above representations, which could be placed on the right side of the following scale to make it balanced?



A

B

C

D

42 Solve for m:

$$2m = 42$$

F $m = 21$
G $m = 40$
H $m = 44$
J $m = 84$

43 Which word best describes the following?

$$h - 6 = 14$$

A Equation
B Term
C Coefficient
D Variable

44 What rule describes the sequence shown?

64, 16, 4, 1, . . .

F Multiply by 4
G Subtract 48
H Divide by 4
J Add 3

45 What is the coefficient in the number sentence $8x = 16$?

A x
B 8
C $8x$
D 16

46 What is a square root of 100 ?

F 50
G 25
H 10
J 4

47 Which pattern follows the rule below?

Divide by 3

A 105, 35, 32, 23, 20
B 108, 36, 18, 9, 3
C 120, 90, 60, 30, 10
D 162, 54, 18, 6, 2

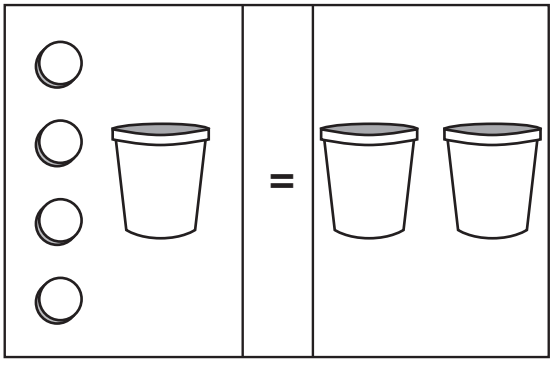
48 John found the solution of $14 + n = 84$ in one step by —

F adding 14 to both sides of the number sentence
G dividing both sides of the number sentence by 14
H multiplying both sides of the number sentence by 14
J subtracting 14 from both sides of the number sentence

49 Which of the following is equivalent to 2^3 ?

A $2 \cdot 3$
B $3 \cdot 3$
C $2 \cdot 2 \cdot 2$
D $2 \cdot 2 \cdot 2 \cdot 2$

50 Look at the equation mat.



What is the value of x ?

F 1
G 2
H 4
J 6

STOP

Answer Key-6073-M0119

Test Sequence Number	Correct Answer	Reporting Category	Reporting Category Description
1	B	002	Computation and Estimation
2	G	002	Computation and Estimation
3	D	002	Computation and Estimation
4	G	002	Computation and Estimation
5	D	002	Computation and Estimation
6	H	002	Computation and Estimation
7	C	002	Computation and Estimation
8	G	002	Computation and Estimation
9	C	002	Computation and Estimation
10	J	002	Computation and Estimation
11	A	001	Number and Number Sense
12	G	001	Number and Number Sense
13	A	001	Number and Number Sense
14	F	001	Number and Number Sense
15	D	001	Number and Number Sense
16	G	001	Number and Number Sense
17	A	001	Number and Number Sense
18	J	001	Number and Number Sense
19	C	003	Measurement and Geometry
20	F	003	Measurement and Geometry
21	B	003	Measurement and Geometry
22	F	003	Measurement and Geometry
23	D	003	Measurement and Geometry
24	H	003	Measurement and Geometry
25	D	003	Measurement and Geometry
26	J	003	Measurement and Geometry
27	B	003	Measurement and Geometry
28	J	003	Measurement and Geometry
29	A	003	Measurement and Geometry
30	F	003	Measurement and Geometry
31	D	004	Probability and Statistics
32	G	004	Probability and Statistics
33	C	004	Probability and Statistics
34	J	004	Probability and Statistics
35	B	004	Probability and Statistics
36	J	004	Probability and Statistics
37	B	004	Probability and Statistics
38	F	004	Probability and Statistics
39	C	005	Patterns, Functions, and Algebra
40	H	005	Patterns, Functions, and Algebra
41	D	005	Patterns, Functions, and Algebra
42	F	005	Patterns, Functions, and Algebra
43	A	005	Patterns, Functions, and Algebra
44	H	005	Patterns, Functions, and Algebra
45	B	005	Patterns, Functions, and Algebra
46	H	005	Patterns, Functions, and Algebra
47	D	005	Patterns, Functions, and Algebra
48	J	005	Patterns, Functions, and Algebra
49	C	005	Patterns, Functions, and Algebra
50	H	005	Patterns, Functions, and Algebra

Grade 6 Math, Core 1

If you get this many items correct:		Then your converted scale score is:
0		000
1		012
2		067
3		100
4		125
5		144
6		161
7		175
8		188
9		200
10		211
11		221
12		230
13		240
14		248
15		257
16		265
17		273
18		280
19		288
20		295
21		303
22		310
23		317
24		324
25		331
26		338
27		346
28		353
29		360
30		367
31		375
32		382
33		390
34		398
35		**406**
36		414
37		423
38		432
39		442
40		452
41		463
42		474
43		487
44		**502**
45		518
46		538
47		562
48		595
49		600
50		600