VIRGINIA STANDARDS OF LEARNING

Spring 2008 Released Test

GRADE 6 MATHEMATICS

Form M0118, CORE 1

This released test contains 1 fewer test item (#1-49 only) than an original SOL Grade 6 Mathematics test.

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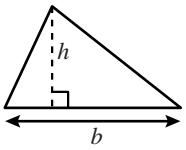
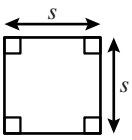
Grade 6 Mathematics Formula Sheet

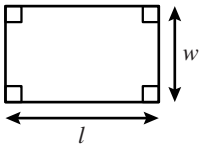
Geometric Formulas



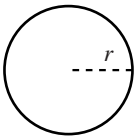
$A = \frac{1}{2}bh$



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



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



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

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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GO ON

Directions

Read each question and choose the best answer. Then fill in the circle on your answer document for the answer you have chosen.

SAMPLE

Which is less than 1.064?

A 1.159
B 1.059
C 1.171
D 1.071

1 $\mathbf{0.07\overline{)1.771}}$

A 0.253

B 2.53

C 25.3

D 253

2 Tim mails two boxes of cookies to friends. One box weighs $1\frac{3}{4}$ pounds, and the other weighs $2\frac{2}{3}$ pounds. What is the total weight of the two boxes?

F $2\frac{1}{7}$ pounds

G $3\frac{5}{12}$ pounds

H $3\frac{5}{7}$ pounds

J $4\frac{5}{12}$ pounds

3 Lisa is having a meeting at her house. There are 48 members at the meeting. She estimates each member will drink 32 ounces of punch. Each bottle of punch contains 64 ounces. Which is the best estimate for the number of bottles of punch Lisa needs to buy?

A 5

B 15

C 25

D 35

4 Sandra wants to buy 2 gallons of detergent. The table shows the sale price of four different brands of detergent.

Detergent Sale Prices

Detergent	Quantity	Sale Price
Ultra Clean	1 gallon	$6.50
Fresh All	$\frac{1}{2}$ gallon	$2.00
Mega Wash	$\frac{1}{2}$ gallon	$3.10
No More Stains	2 gallons	$12.00

Which of the following is the *least* expensive way for Sandra to buy 2 gallons of detergent?

F Buying 4 bottles of Fresh All

G Buying 4 bottles of Mega Wash

H Buying 2 bottles of Ultra Clean

J Buying 1 bottle of No More Stains

5 Every week Sam saves $1.00 on Monday and $2.50 on Friday. If this is his total weekly savings, how many weeks would it take him to save enough to buy a $49 wireless phone?

A 7 weeks

B 14 weeks

C 46 weeks

D 52 weeks

6 $1\frac{5}{6} - \frac{1}{3} =$

F $1\frac{1}{6}$

G $1\frac{1}{3}$

H $1\frac{1}{2}$

J $2\frac{1}{3}$

7 **Risa drank $\frac{5}{8}$ glass of lemonade. Fola drank $\frac{1}{4}$ glass of lemonade. If the glasses held the same amount of lemonade, how much more did Risa drink than Fola?**

A $\frac{1}{8}$ glass

B $\frac{3}{8}$ glass

C $\frac{1}{2}$ glass

D $\frac{3}{4}$ glass

8 Look at the table.

Team's Weekly Running Schedule

Day	Distance Run (miles)
Sun.	0
Mon.	$2\frac{1}{2}$
Tue.	3
Wed.	$2\frac{1}{2}$
Thu.	3
Fri.	$2\frac{1}{2}$
Sat.	10

What is the *total* distance the team will run in 4 weeks?

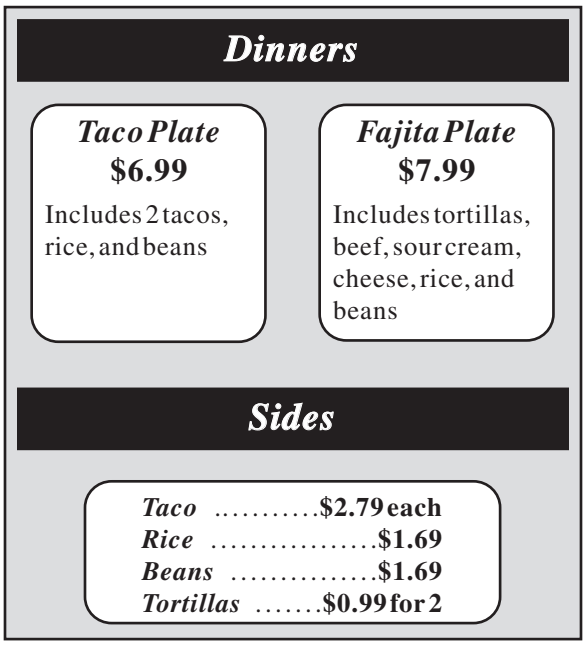
F $23\frac{1}{2}$ miles

G 47 miles

H $70\frac{1}{2}$ miles

J 94 miles

9 Look at the menu.



Which is the best estimate of the difference between the cost of buying the Taco Plate dinner and the cost of buying rice, beans, and 2 tacos as sides?

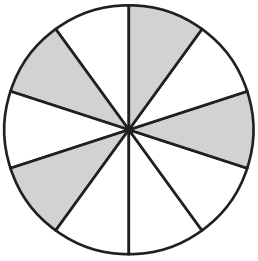
A $2
B $5
C $7
D $10

Do not turn the page until you are told.

STOP

10 All of these circles are the same size. Within each circle the pieces are equally divided. Which circle has the *least* amount shaded?

F



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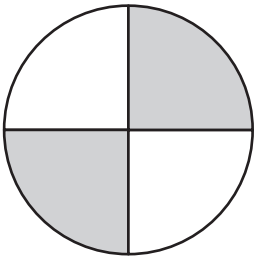

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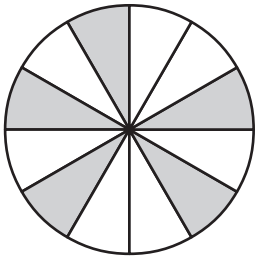

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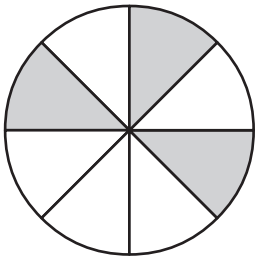

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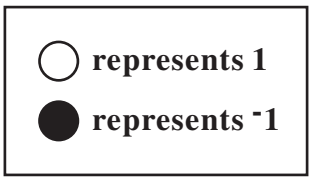
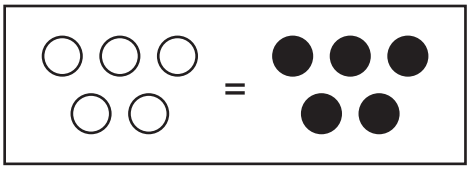
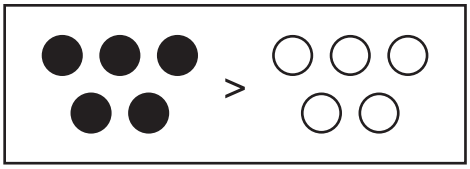


Based on the representations shown, which of the following is true?

A



B



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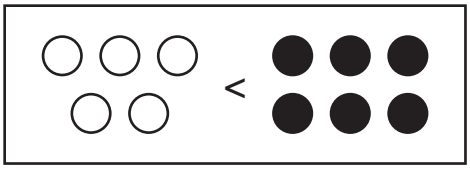

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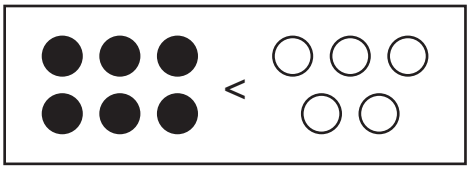


12 Which is equivalent to $\frac{3}{20}$?

F 3%
G 5%
H 15%
J 20%

13 Which of the following is a composite number?

A 13
B 15
C 17
D 23

14 The ratio of boys to girls in Room B is 15 to 12. What is the ratio of girls to *total* students in Room B ?

F 12 to 27
G 12 to 15
H 15 to 27
I 15 to 12

15 What is the greatest common factor of 12 and 20 ?

A 2
B 4
C 60
D 240

16 Which of the following is true?

F $0.310 < 0.275$
G $0.325 > 0.310$
H $0.325 < 0.275$
J $0.310 > 0.325$

17 Which is a prime number?

A 33
B 35
C 37
D 39

18 The picture shows a section of Main Street. The car in the picture is 15 feet long.

Which estimate is *closest* to the length of the section of Main Street shown in the picture?

F 15 ft

G 30 ft

H 45 ft

J 60 ft

19 Lou is making a pizza that has a radius of 9 inches. Which is closest to the area of the pizza?

A 1,017.36 sq in.

B 254.34 sq in.

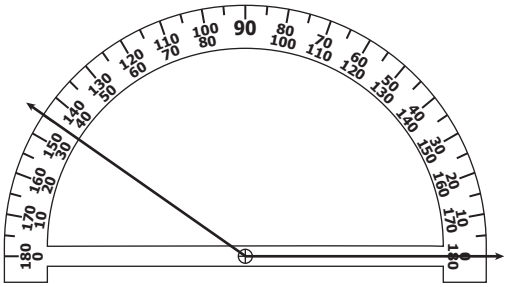
C 56.52 sq in.

D 25.434 sq in.

20 Which statement is true about both a pyramid *and* a cone?

F Both have at least one vertex.
G Both have a circular base.
H Both have a rectangular base.
J Both have at least one triangular face.

21 Which is closest to the measure of the angle shown?

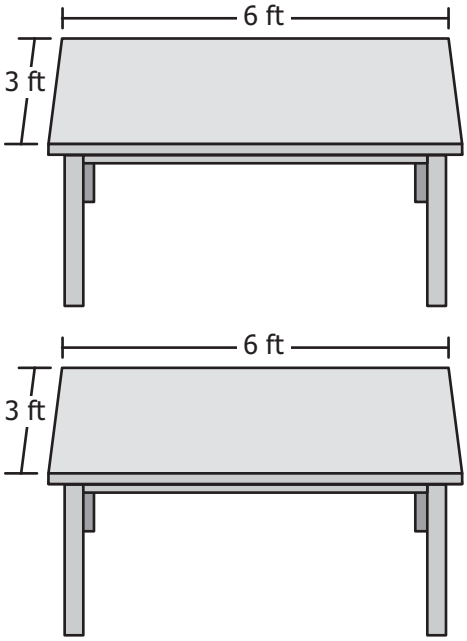


A 35°
B 45°
C 145°
D 155°

22 Which word does *not* apply to every rectangle?

F Parallelogram
G Quadrilateral
H Polygon
J Rhombus

23 Casey and her friends went to the library to work on their social studies project. They pushed the two tables pictured together.



What will be the total area of the top of the two tables when they are pushed together?

A 18 square feet

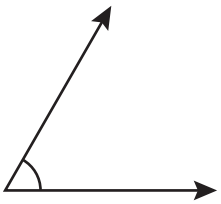
B 24 square feet

C 36 square feet

D 48 square feet

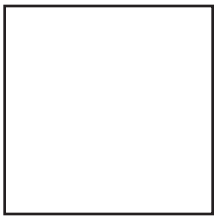
GO ON

24 Petra drew the angle shown.

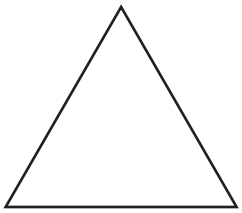


Which figure most likely has an angle that is congruent to the angle Petra drew?

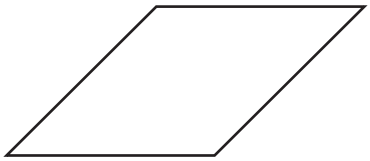
F



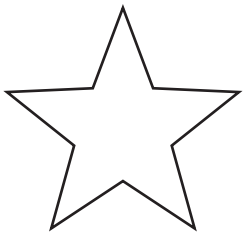
G



H

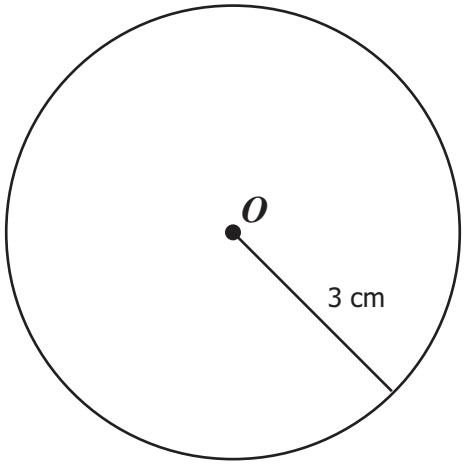


J



GO ON

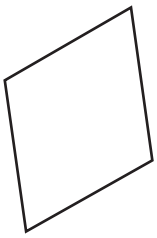
25 Which is closest to the circumference of circle O shown?



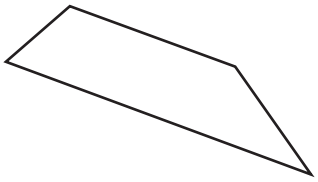
A 113.04 cm
B 75.36 cm
C 37.68 cm
D 18.84 cm

26 Which figure appears to have *exactly* one pair of parallel sides?

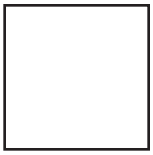
F



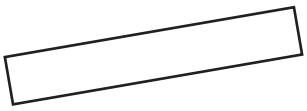
G



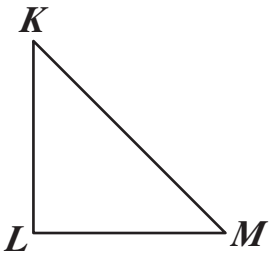
H



J

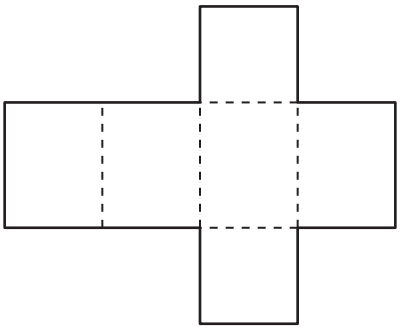


27 Which is *closest* to the measure of $\angle M$ in the figure shown?



A 180°
B 90°
C 60°
D 45°

28 What three-dimensional object will be formed when the figure below is folded on the dashed lines?



F Cone
G Cylinder
H Square pyramid
J Rectangular prism

29 Anna rode her bicycle 12.4 kilometers. How many meters did she ride?

A 0.124 meter
B 1,240 meters
C 12,400 meters
D 124,000 meters

30 A clerk recorded the number of pairs of jeans sold each day at a store. The data are displayed on the stem-and-leaf plot.

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

Key
1|5 = 15

Which of the following statements is *true* according to the data in the stem-and-leaf plot?

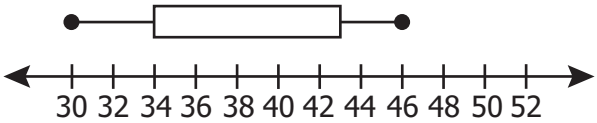
F The number of pairs of jeans sold each day was between 0 and 8.

G The stem-and-leaf plot displays 26 days of sales.

H The median for the data is 25.

J The mode for the data is 25.

31 What is missing from the box-and-whisker plot?



A Median

B Range

C Upper quartile

D Lower quartile

32 Look at the table.

Travel Time to School

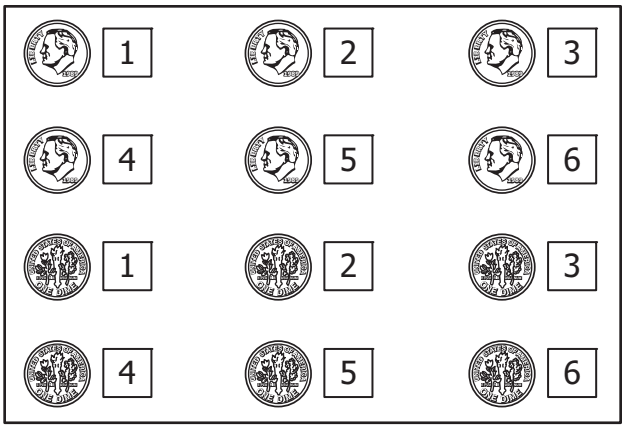
Student	Time (in minutes)
Jennifer	14
Randy	10
Kris	6
Jordan	18
Tia	13
Sam	10
Josh	9
Simon	15
Ray	10

What is the range for the times listed in the table?

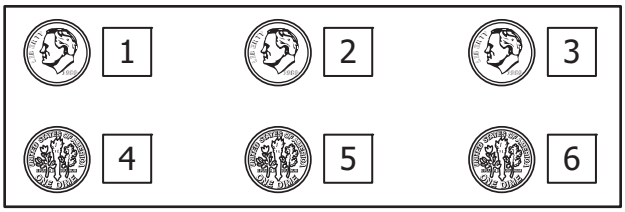
F 4 min
G 9 min
H 10 min
J 12 min

33 **Claire flips a fair coin with sides and . Kris rolls a fair number cube with sides 1 2 3 4 5 6. Which shows all of the possible combinations of one flip and one roll?**

A



B



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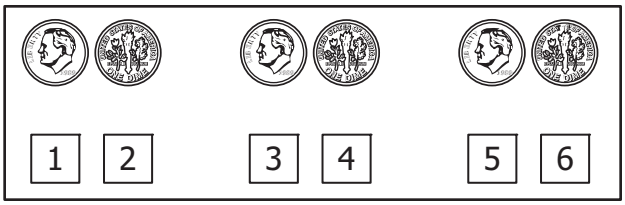

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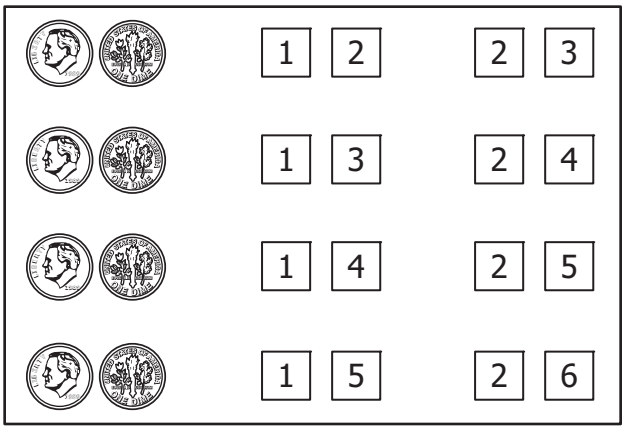


GO ON

34 Look at the table.

Songs on Seth's CD Player

Song Title	Artist
Goin' Fishin'	Tory Chambers
Let's Play That Again	Sound Off
Morning News	The Shipping Department
Everybody Here Yet?	185
Down on Oak Street	Tory Chambers
Words I Like to Hear	Fortune
No Surprise	185
That's My Game	Sound Off
Forget About It	Ellis Bell
Equal Time	Casey D
Address Book	Casey D
Checking In	Sound Off

The songs on Seth's CD player play randomly. What is the probability that the next song played will be by the artist Sound Off?

F $\frac{1}{12}$

G $\frac{3}{12}$

H $\frac{3}{24}$

I $\frac{1}{7}$

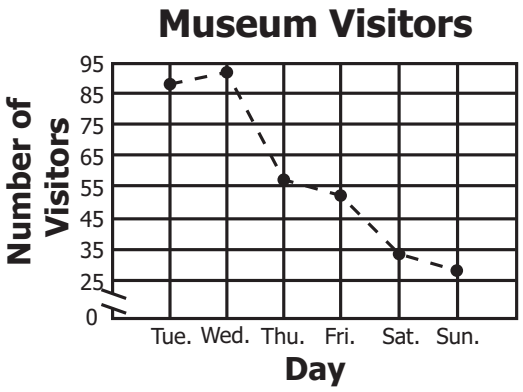
35 **This table shows the number of people who visited a museum over a 6-day period.**

Museum Visitors

Day	Number of Visitors
Tue.	28
Wed.	34
Thu.	52
Fri.	56
Sat.	93
Sun.	87

Which graph best displays the information in the table?

A



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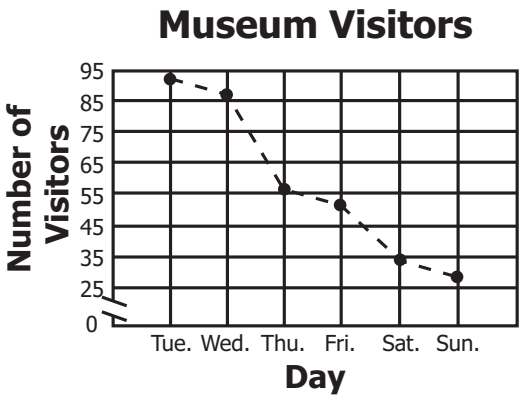
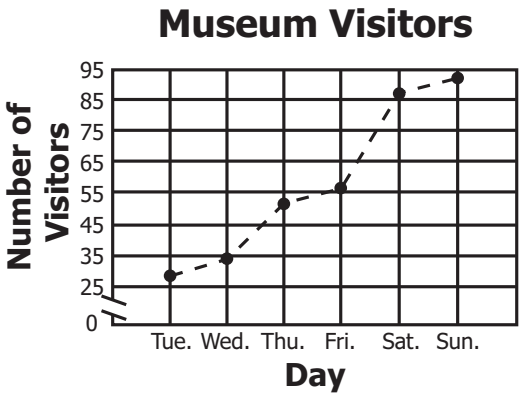


C



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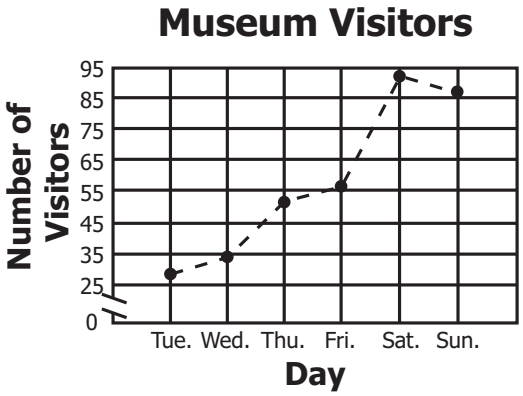


GO ON

36 Which statement is *false*?

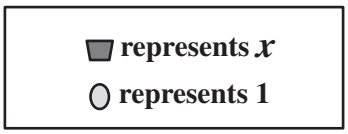
F A set of data always has a mode.
G A set of data may have exactly one mode.
H A set of data may have more than one mode.
J The mode is the piece of data that occurs most frequently.

37 What is the median for this set of data?

$$\{\mathbf{217,\ 243,\ 203,\ 206,\ 230,\ 195,\ 243}\}$$

A 206
B 217
C 220
D 243

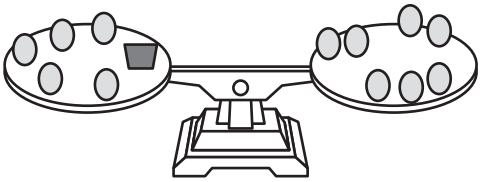
38



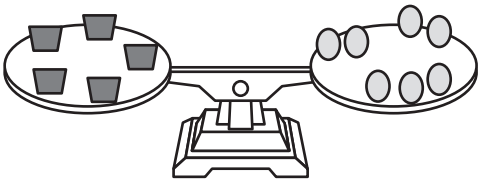
Using the representations above, which correctly represents the following number sentence if each scale is balanced?

$$5 + x = 7$$

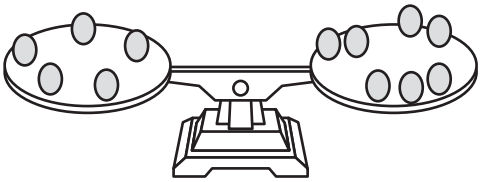
F



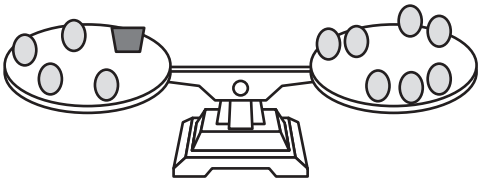
G



H

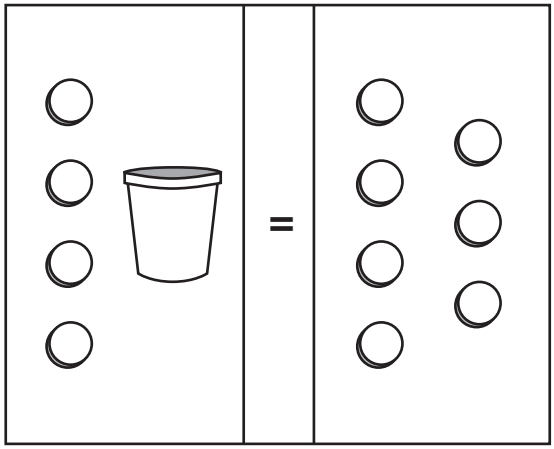


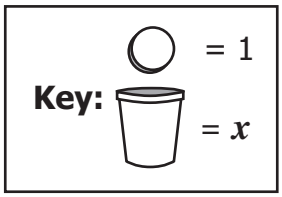
J



GO ON

39 Look at the equation mat.





What is the value of x ?

A 11
B 7
C 3
D 2

GO ON

40 Look at the table.

Part of Patrick's Pattern

Term	Value
11	121
12	144
13	169
14	196
15	225

Which rule does Patrick's pattern follow?

F Add 110 to the term to get the value.

G Multiply 11 by the term to get the value.

H Double the term to get the value.

J Square the term to get the value.

41 Which pattern would be the result of a rule in which two triangles always follow a square, and a circle can only appear after every fourth triangle?

A

B

C

D

GO ON

42 What value of p will make the following number sentence true?

$$14p = 182$$

F 13
G 168
H 196
J 2,548

43 Look at the table.

x	y
1	3
2	6
3	9
4	12
5	15
6	18
7	21

Which rule *best* describes the relationship between all the x and y values in the table?

A Add 2 to the x-value to get the y-value.
B Subtract 14 from the y-value to get the x-value.
C Divide the y-value by 2 to get the x-value.
D Multiply the x-value by 3 to get the y-value.

44 Tammy wrote the following values for powers of 10.

$$10^2 = 100$$
$$10^3 = 1{,}000$$
$$10^4 = 10{,}000$$
$$10^5 = 100{,}000$$

Based on the pattern, which is equivalent to 100,000,000 ?

F 10^6

G 10^7

H 10^8

J 10^9

45 Which is an equation?

A $h - 5 = \frac{32}{8}$

B $6x - 3$

C $5y + 1 > 2$

D $4t^2$

46 Jeff multiplied each term in the pattern below by the same number.

1, 4, 16, 64

If the pattern continues, what will be the 6th term?

F 84
G 112
H 256
J 1,024

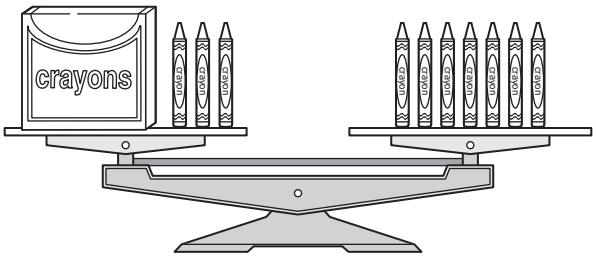
47

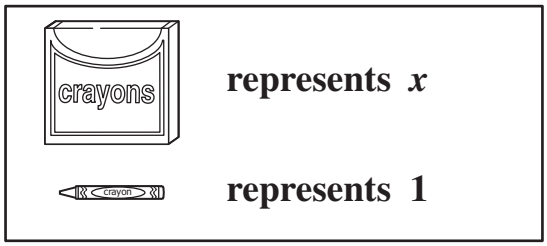
405, 135, 45, 15

Dylan began his number pattern with 405. To determine each new number in the pattern, he performed the same operation on the previous number. Which operation could have been used for the pattern?

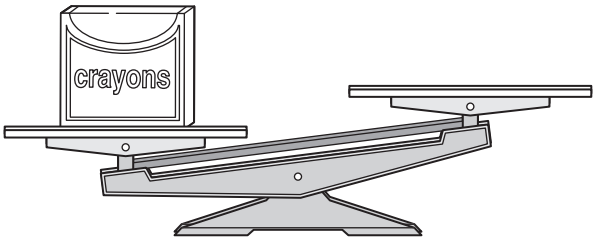
A Divide by 3
B Multiply by 3
C Subtract 270
D Divide by 5

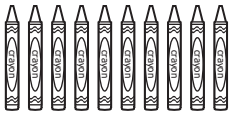
48 The scale below is balanced.





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



F 

G

H

J

49 A variable is –

A the numerical factor in a term

B a mathematical sentence stating that two expressions are equal

C a symbol used to represent an unspecified member of a set

D a number in an expression of sums and/or differences

STOP

Answer Key-6073-M0118

Test Sequence Number	Correct Answer	Reporting Category	Reporting Category Description
1	C	002	Computation and Estimation
2	J	002	Computation and Estimation
3	C	002	Computation and Estimation
4	F	002	Computation and Estimation
5	B	002	Computation and Estimation
6	H	002	Computation and Estimation
7	B	002	Computation and Estimation
8	J	002	Computation and Estimation
9	A	002	Computation and Estimation
10	J	001	Number and Number Sense
11	D	001	Number and Number Sense
12	H	001	Number and Number Sense
13	B	001	Number and Number Sense
14	F	001	Number and Number Sense
15	B	001	Number and Number Sense
16	G	001	Number and Number Sense
17	C	001	Number and Number Sense
18	H	003	Measurement and Geometry
19	B	003	Measurement and Geometry
20	F	003	Measurement and Geometry
21	C	003	Measurement and Geometry
22	J	003	Measurement and Geometry
23	C	003	Measurement and Geometry
24	G	003	Measurement and Geometry
25	D	003	Measurement and Geometry
26	G	003	Measurement and Geometry
27	D	003	Measurement and Geometry
28	J	003	Measurement and Geometry
29	C	003	Measurement and Geometry
30	J	004	Probability and Statistics
31	A	004	Probability and Statistics
32	J	004	Probability and Statistics
33	A	004	Probability and Statistics
34	G	004	Probability and Statistics
35	D	004	Probability and Statistics
36	F	004	Probability and Statistics
37	B	004	Probability and Statistics
38	F	005	Patterns, Functions, and Algebra
39	C	005	Patterns, Functions, and Algebra
40	J	005	Patterns, Functions, and Algebra
41	A	005	Patterns, Functions, and Algebra
42	F	005	Patterns, Functions, and Algebra
43	D	005	Patterns, Functions, and Algebra
44	H	005	Patterns, Functions, and Algebra
45	A	005	Patterns, Functions, and Algebra
46	J	005	Patterns, Functions, and Algebra
47	A	005	Patterns, Functions, and Algebra
48	G	005	Patterns, Functions, and Algebra
49	C	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		026
2		081
3		114
4		138
5		157
6		173
7		187
8		200
9		211
10		221
11		231
12		240
13		249
14		257
15		265
16		273
17		280
18		288
19		295
20		302
21		309
22		315
23		322
24		329
25		336
26		342
27		349
28		356
29		363
30		370
31		377
32		384
33		392
34		399
35		**407**
36		415
37		424
38		433
39		442
40		452
41		463
42		475
43		487
44		**502**
45		518
46		538
47		562
48		596
49		600
50		600