

Name _____

Minnesota Comprehensive Assessments-Series III

Mathematics Item Sampler
Grade 6



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Minnesota Department of
Education



1. Which is equivalent to 4^3 ?

- A. 12
- B. 48
- C. 64
- D. 81

2. Divide.

$$1\frac{1}{10} \div 1\frac{1}{5}$$

- A. $\frac{11}{12}$
- B. $\frac{25}{33}$
- C. $1\frac{8}{25}$
- D. $1\frac{1}{2}$



3. Riley has 200 stamps.

- 35% are from Europe.
- 10% are from Asia.
- 20% are from Australia.

The rest of the stamps are from North America. How many of Riley's stamps are from North America?

- A. 35
 - B. 65
 - C. 70
 - D. 130
-

4. What is the prime factorization of 630?

- A. $2 \times 3 \times 5 \times 7$
- B. $2 \times 3^2 \times 5 \times 7$
- C. $2 \times 3^2 \times 35$
- D. $2 \times 5 \times 7 \times 9$



1

5. An equation is shown.

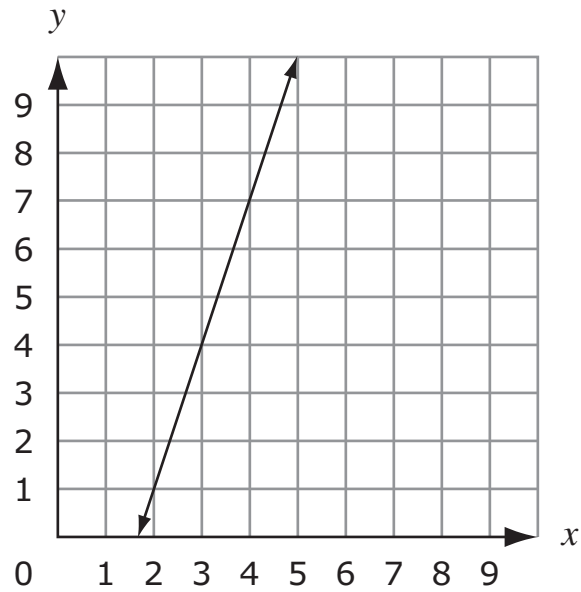
$$j = 7k + 5$$

When the value of k increases by 2, by what amount does the value of j increase?

- A. 2
- B. 9
- C. 12
- D. 14



6. A graph is shown.



What is the equation of the line on the graph?

- A. $y = x - 1$
- B. $y = x + 3$
- C. $y = 3x + 1$
- D. $y = 3x - 5$



1

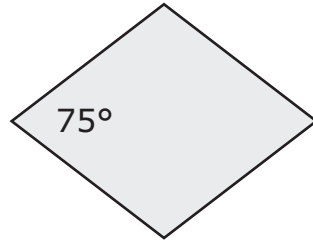
7. Simplify.

$$4\left(\frac{1}{2} + \frac{3}{8}\right) - \frac{5}{8} \cdot 2$$

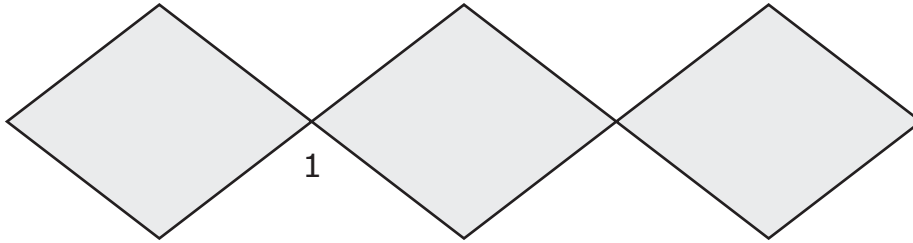
- A. $1\frac{1}{8}$
- B. 2
- C. $2\frac{1}{4}$
- D. $5\frac{3}{4}$



8. A rhombus is shown.



The rhombus is used to make a design.



What is $m\angle 1$?

- A. 15°
- B. 75°
- C. 105°
- D. 150°



Mathematics Test — Segment 2

9. Which statement is true?

A. $\frac{1}{6} = 0.16$

B. $0.08 = \frac{4}{5}$

C. $0.25 < \frac{1}{4}$

D. $\frac{1}{3} > 0.3$

2

10. Kelly makes 12 candles in 3 hours. Lee makes 6 candles in 1 hour. What is the difference in the numbers of candles they each make in 8 hours?

A. 2

B. 8

C. 16

D. 48

11. A bottle of soap costs \$3.45 for 64 ounces. What is the cost per ounce?

A. \$0.05

B. \$0.19

C. \$0.22

D. \$0.64

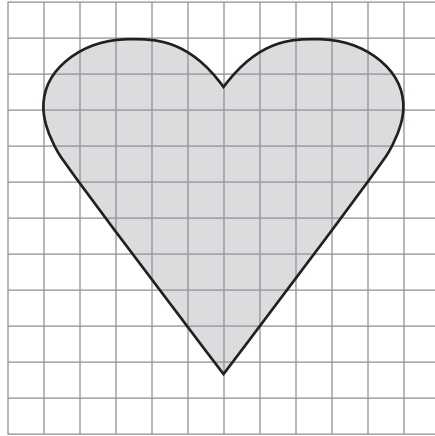


- 12.** A company is printing 250 calendars. In 1 hour, 75 calendars are printed. What percent of the calendars are printed in 1 hour?
- A.** 3%
 - B.** 3.3%
 - C.** 30%
 - D.** 33%
-

- 13.** The surface area of a cube is 384 square inches. What is the volume of the cube?
- A.** 8 cubic inches
 - B.** 16 cubic inches
 - C.** 256 cubic inches
 - D.** 512 cubic inches



14. A heart shape is cut from a gridded piece of paper.



2

What is the approximate area of the heart?

- A.** 50 square units
- B.** 70 square units
- C.** 90 square units
- D.** 144 square units

15. Joleen bought 12 apples. Each apple weighed 1.8 ounces. How many pounds of apples did Joleen buy?

- A.** 1.35 pounds
- B.** 2.4 pounds
- C.** 21.6 pounds
- D.** 28.8 pounds



Please fill in the grid with your answer to question 16 on page 2 of your answer document.

16. Eli has a cube with sides numbered 1–6 and a spinner with 3 equal sections labeled A, B, and C. He rolls the cube and spins the spinner. How many outcomes are possible?

-
17. Four students each flipped a coin 50 times and recorded the results in the table.

Student	Heads	Tails
Mai Ka	31	19
Heather	15	35
Jose	21	29
Tyrone	20	30

Who had a relative frequency of $\frac{3}{5}$ of flipping tails?

- A. Mai Ka
- B. Heather
- C. Jose
- D. Tyrone



18. Which is equivalent to 0.04%?

- A. $\frac{1}{4}$
- B. $\frac{1}{25}$
- C. $\frac{1}{400}$
- D. $\frac{1}{2,500}$

2

19. What is the greatest common factor of 48 and 64?

- A. 2
- B. 8
- C. 16
- D. 24

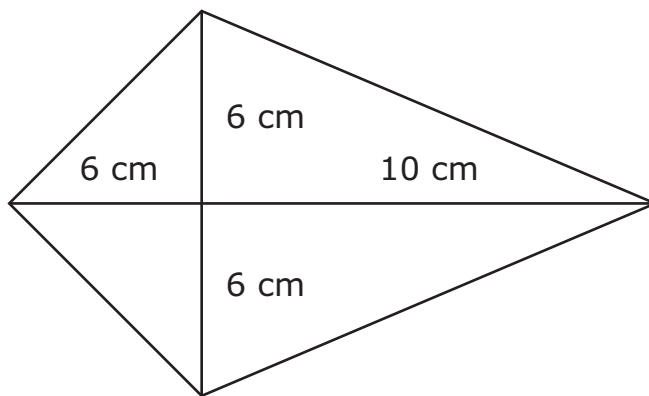
20. A paint color is made using 4 drops of red and 5 drops of blue for each 5 gallons of paint. How many gallons of paint are being colored when 45 drops of color are used?

- A. 9
- B. 25
- C. 45
- D. 81



- 21.** A phone company uses the equation $y = 0.15x + 10$ to find y , the monthly charge for a customer sending x text messages. How many text messages are sent if the monthly charge is \$77.50?
- A.** 10
 - B.** 21
 - C.** 450
 - D.** 506

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- 22.** A scale drawing of a kite is shown.

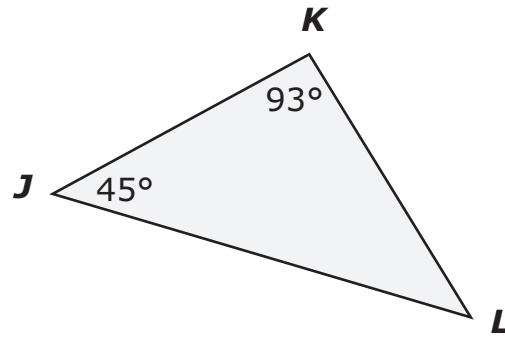


What is the area of the kite?

- A.** 28 cm^2
- B.** 60 cm^2
- C.** 96 cm^2
- D.** 192 cm^2



23. A triangle is shown.



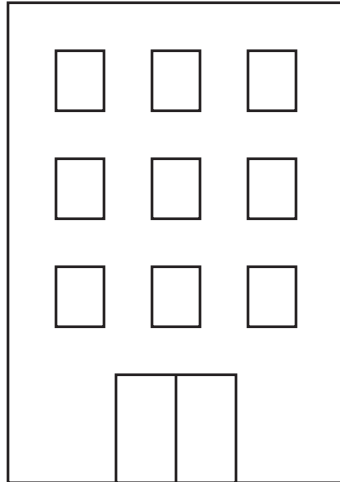
What is $m\angle L$?

- A. 42°
- B. 45°
- C. 48°
- D. 138°

2



24. A building has 9 windows. Each window is 5 feet tall.



About how tall is the building?

- A.** 30 feet
- B.** 35 feet
- C.** 40 feet
- D.** 45 feet

25. Tyler has a stack of cards. He picks a card, records the color, and returns the card to the stack. He repeats this 60 times and chooses a red card 24 times. What is the experimental probability of choosing a red card from the stack?

- A.** 0.14
- B.** 0.23
- C.** 0.40
- D.** 2.50

Grade 6 Teacher's Guide

Mathematics MCA Item Sampler Answer Key Grade 6 Math

Item #	Correct Answer	Item Type	Strand	Standard	Benchmark
1	C	MC	1	1	07
2	A	MC	1	3	01
3	C	MC	1	1	03
4	B	MC	1	1	05
5	D	MC	2	1	01
6	D	MC	2	1	02
7	C	MC	2	2	01
8	C	MC	3	2	01
9	D	MC	1	1	02
10	C	MC	1	2	01
11	A	MC	1	2	03
12	C	MC	1	3	03
13	D	MC	3	1	01
14	A	MC	3	1	03
15	A	MC	3	3	01
16	Grid	GR	4	1	01
17	D	MC	4	1	03
18	D	MC	1	1	04
19	C	MC	1	1	06
20	B	MC	1	2	02
21	C	MC	2	3	02
22	C	MC	3	1	02
23	A	MC	3	2	02
24	C	MC	3	3	02
25	C	MC	4	1	04