

## MCAP ... Grade 6 Practice (Section 3)



### Mathematics

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- 1 Laura uses 3 yards of fabric to make 2 skirts. She uses the same amount of fabric to make each skirt.

At this rate, what is the total amount of fabric, in yards, she needs to make 6 skirts?

Select one answer.

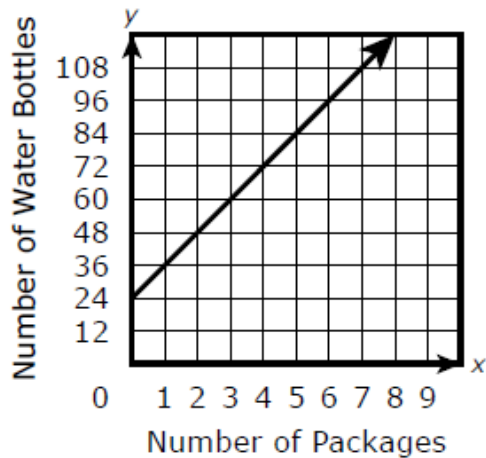
- A 4
- B 6
- C 7
- D 9



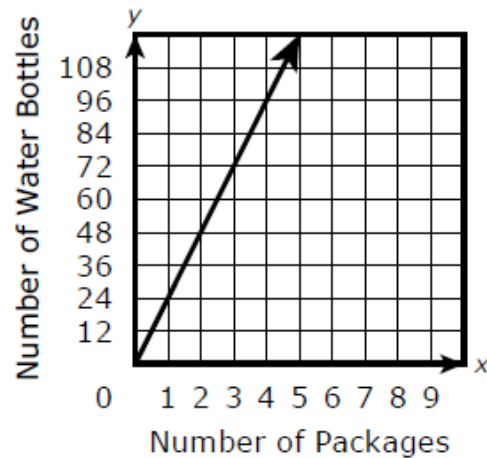
- 2 Packages of bottled water are purchased for a sixth-grade picnic. Each package contains 24 water bottles.

Which graph models the relationship between  $x$ , the number of packages of bottled water purchased, and  $y$ , the number of water bottles?

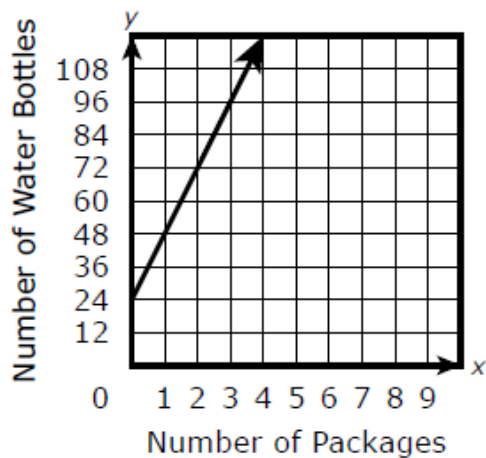
A **Bottled Water**



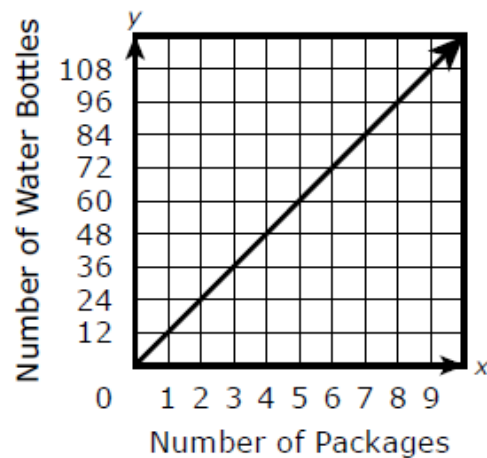
B **Bottled Water**



C **Bottled Water**



D **Bottled Water**

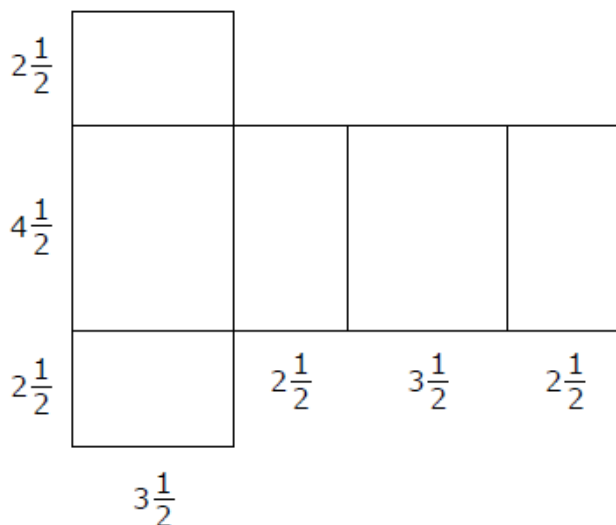


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- 3 The diagram shows the net of a wooden chest in the shape of a rectangular prism. All dimensions are in feet.



A painter will apply stain to all the faces of the wooden chest. The calculations that the painter used to find the surface area, in square feet, of the wooden chest are shown.

$$2\frac{1}{2} \times 3\frac{1}{2} = \left(2 \times 3\right) + \left(\frac{1}{2} \times \frac{1}{2}\right) = 6\frac{1}{4} \times 2 = 12\frac{1}{2}$$

$$2\frac{1}{2} \times 4\frac{1}{2} = \left(2 \times 4\right) + \left(\frac{1}{2} \times \frac{1}{2}\right) = 8\frac{1}{4} \times 2 = 16\frac{1}{2}$$

$$3\frac{1}{2} \times 4\frac{1}{2} = \left(3 \times 4\right) + \left(\frac{1}{2} \times \frac{1}{2}\right) = 12\frac{1}{4} \times 2 = 24\frac{1}{2}$$

The total surface area is  $12\frac{1}{2} + 16\frac{1}{2} + 24\frac{1}{2} = 53\frac{1}{2}$  square feet.

- What mistake was made in the calculation of the surface area of the wooden chest?
- Find the correct surface area of the wooden chest.

Enter your answers and your work or explanation in the space provided.



4 The expression  $12x + 8$  is equivalent to the expression  $a(bx + c)$ , where  $b$  and  $c$  are constants and have no common factors. A student wrote the answer as  $2(6x + 4)$ .

Which statement **best** explains whether the student's answer is correct or incorrect?

- A The student's answer is incorrect because the greatest common factor of  $12x$  and  $8$  is  $2x$ , so the correct expression is  $2x(6x + 4)$ .
- B The student's answer is incorrect because the greatest common factor of  $12x$  and  $8$  is  $4x$ , so the correct expression is  $4x(3x + 2)$ .
- C The student's answer is incorrect because the greatest common factor of  $12x$  and  $8$  is  $4$ , so the correct expression is  $4(3x + 2)$ .
- D The student's answer is incorrect because the greatest common factor of  $12x$  and  $8$  is  $8$ , so the correct expression is  $8(4x + 1)$ .

5 An art teacher has a jar containing  $\frac{3}{4}$  pound of glitter for use by the students in a class. The glitter is being separated into portions that are each  $\frac{1}{10}$  pound of glitter.

The teacher asked, "What is the greatest number of whole portions that can be made?"

One student incorrectly obtains the answer of  $\frac{4}{3} \times \frac{10}{1} = \frac{40}{3} = 13\frac{1}{3}$ , and says 13 portions can be made.

- Explain the mistake that was made in the calculations.
- What is the correct answer to the question?

Enter your answers and your work or explanation in the space provided.

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### Mathematics

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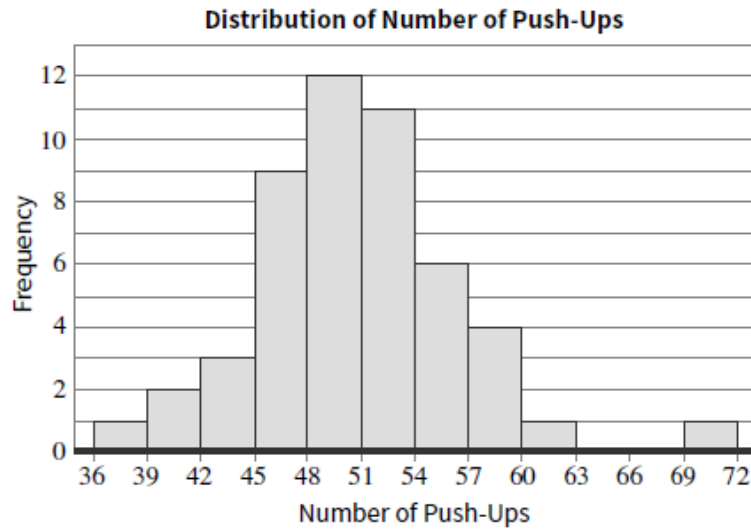
- 6 Students in a science class measured rain by writing down the depth of water in a bucket that collected the rain. The bucket was empty before the rain began to fall at a steady rate over a 6-hour period during school. After 3 hours, the water had a depth of 18 millimeters.

At what average unit rate, in millimeters per hour, did the bucket fill after rain started to fall at a steady rate?

- A  $\frac{1}{6}$
- B  $\frac{1}{3}$
- C 3
- D 6



- 7 The following histogram summarizes the recorded number of push-ups that a group of fitness instructors completed in a certain time period. Each interval contains possible values at the left endpoint up to but not including the right endpoint.



What is the total number of fitness instructors represented in the histogram who completed 57 or more push-ups?

Enter your answer in the space provided.

**Answers**

**Section 3**

Item Number	Answer Key
1.	D
2.	B
3.	<p><b><u>Sample Top Score Response</u></b></p> <p>The painter did not multiply the mixed numbers correctly. The painter incorrectly multiplied the whole numbers together and the fractions together, then added the sums.</p> $2\frac{1}{2} \times 3\frac{1}{2} = \frac{5}{2} \times \frac{7}{2} = \frac{35}{4}$ $2\frac{1}{2} \times 4\frac{1}{2} = \frac{5}{2} \times \frac{9}{2} = \frac{45}{4}$ $3\frac{1}{2} \times 4\frac{1}{2} = \frac{7}{2} \times \frac{9}{2} = \frac{63}{4}$ <p>The total surface area is</p> $2\left(\frac{35}{4}\right) + 2\left(\frac{45}{4}\right) + 2\left(\frac{63}{4}\right) = \frac{286}{4} = 71\frac{1}{2}$ <p>square feet.</p> <p><b>Refer to the Holistic Rubric for 3-Point Modeling Constructed Response Items for score point information.</b></p>
4.	C

**Answers**

Item Number	Answer Key
5.	<p><b><u>Sample Top Score Response</u></b></p> <p>The mistake was using the reciprocal of both fractions and not only the divisor.</p> <p>To find <math>x</math>, the number of portions in the jar, divide <math>\frac{3}{4}</math> by <math>\frac{1}{10}</math>.</p> $x = \frac{3}{4} \div \frac{1}{10} = \frac{3}{4} \times \frac{10}{1} = \frac{30}{4} = 7\frac{1}{2}$ <p>There will be 7 whole portions of glitter.</p> <p><b>Refer to the Holistic Rubric for 3-Point Reasoning Constructed Response Items for score point information.</b></p>
6.	D
7.	6