Colorado Measures of Academic Success

Grade 7 Mathematics

Paper Practice Resource for Students

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The Colorado Measures of Academic Success (CMAS) is Colorado's standards-based assessment program designed to measure the Colorado Academic Standards (CAS) in the content areas of science, social studies, English language arts, and mathematics. The sample items included in this resource provide students with an opportunity to become familiar with the format of test items that appear in the paper-based test books.

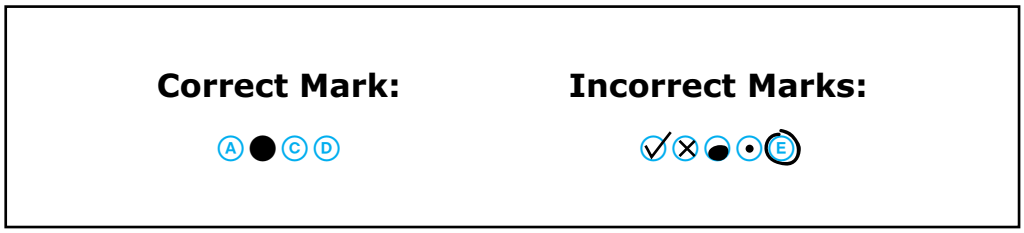
While the use of the sample items is not required, it is strongly encouraged to help ensure students are familiar with the types of items they may encounter while taking the paper-based test.

The sample item sets in the CMAS Practice Resources are not intended to be representative of a complete unit or test, nor are they intended to cover all assessed content or item types. To view assessment frameworks, high level blueprints, scoring rubrics, evidence statements and standards for the CMAS assessments, visit: https://www.cde.state.co.us/assessment/cmas_testdesign.

Item Types:

Selected Response Items

Selected response items are multiple choice questions. To respond, the student indicates their response in an answer grid or by filling in the circle(s) next to their answer choice.



Constructed Response Items

Constructed response items are questions or prompts that require an independent, written response. To respond, the student writes his or her answer in the response box in the test book.

Converted Online Technology-Enhanced Item Types

Online technology-enhanced items converted to the paper testing format may ask students to:

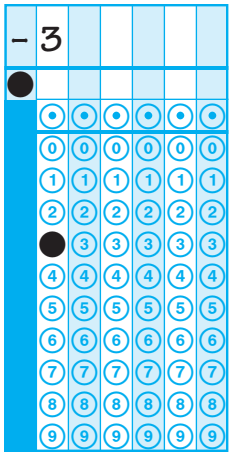
- Circle the correct answer
- Complete a table with checkmarks, Xs, or letters from a list of answer choices
- Fill in the blank
- Draw lines from boxes to correct answers
- Complete a bar graph or histogram
- Interact with a number line
- Graph points and lines on a coordinate grid
- Divide and shade shapes to indicate fractions

Directions for Completing the Answer Grids

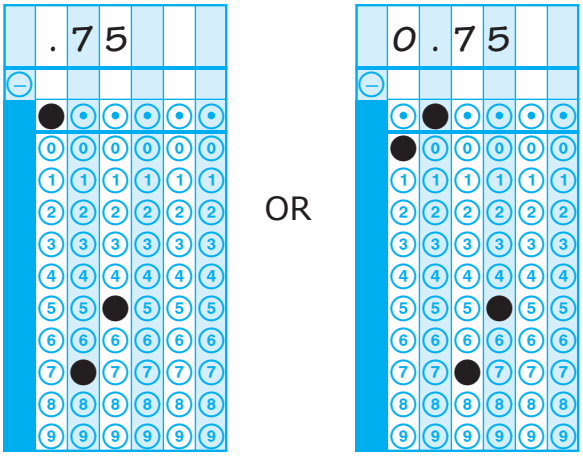
1. Work the problem and find an answer.
2. Write your answer in the boxes at the top of the grid.
3. Print only one number or symbol in each box. Do not leave a blank box in the middle of an answer.
4. Under each box, fill in the circle that matches the number or symbol you wrote above. Make a solid mark that completely fills the circle.
5. Do not fill in a circle under an unused box.
6. Fractions cannot be entered into an answer grid and will not be scored. Enter fractions as decimals.
7. See below for examples on how to correctly complete an answer grid.

EXAMPLES

To answer −3 in a question, fill in the answer grid as shown below.



To answer .75 in a question, fill in the answer grid as shown below.



ITEM SET 1 - SECTION 1 (Non-Calculator)

Directions:

This Item Set has two sections: a non-calculator section and a calculator section. You will now take the non-calculator section. You may not use a calculator.

1. In 1 year, the water level of a lake changes by $-\frac{3}{8}$ inch.

If the water level of the lake continues to change at this rate for 7 years, how many inches will the water level of the lake have changed?

Enter your answer in the space provided. Enter **only** your answer.

_____

2. Create an expression that has the same value as $(6x - 4) + (x + 5)$.

Write the correct numbers from the list in the blank boxes. Each number may be used once, more than once, or not at all.

1	2	4	5	6	7	9	11

$\square x + \square$

3. Which expression is equivalent to $-\frac{3}{5}\left(7 - 3\frac{1}{3}\right)$?

Ⓐ $\left(-\frac{3}{5}\right)(-7) + \left(-\frac{3}{5}\right)\left(-3\frac{1}{3}\right)$

Ⓑ $-\left(-\frac{3}{5}\right)(7) - \left(-\frac{3}{5}\right)\left(3\frac{1}{3}\right)$

Ⓒ $-\left(-\frac{3}{5}\right)(7) - \left(-\frac{3}{5}\right)\left(-3\frac{1}{3}\right)$

Ⓓ $\left(-\frac{3}{5}\right)(7) + \left(-\frac{3}{5}\right)\left(-3\frac{1}{3}\right)$

4. Which expression is equivalent to $-\frac{1}{5}(y - 3) + 5 + \frac{3}{10}y$?

Select **all** expressions that are equivalent.

Ⓐ $-\frac{1}{5}y + 5\frac{3}{5} + \frac{3}{10}y$

Ⓑ $-\frac{1}{5}y + 4\frac{2}{5} + \frac{3}{10}y$

Ⓒ $\frac{1}{10}y + 5\frac{3}{5}$

Ⓓ $\frac{1}{2}y + 4\frac{2}{5}$

Ⓔ $\frac{1}{10}y + 2$

5. The graph represents the amount of water, in gallons, y, that flows through a garden hose in x minutes.

Which statement correctly describes the meaning of the point shown on this graph?

Ⓐ Every 6 minutes, 72 gallons of water flow through the hose.

Ⓑ Every 72 minutes, 6 gallons of water flow through the hose.

Ⓒ Every 6 minutes, 12 gallons of water flow through the hose.

Ⓓ Every 12 minutes, 6 gallons of water flow through the hose.

6. A person paid a total of $38.50, before tax, for flowers and dirt at a store. The price of the flowers was $4.50 per container. The price of the dirt was $7.00 per bag.

If the customer bought one bag of dirt, how many containers of flowers did the customer buy?

Ⓐ 5

Ⓑ 7

Ⓒ 9

Ⓓ 10

7. A student spent $18 for a haircut this week.

Which event, when combined with the student spending $18, will result in the student having $0 remaining?

Ⓐ The student earned $18 for cleaning out his neighbor's garage.

Ⓑ The student paid his little brother $18 for doing his chores.

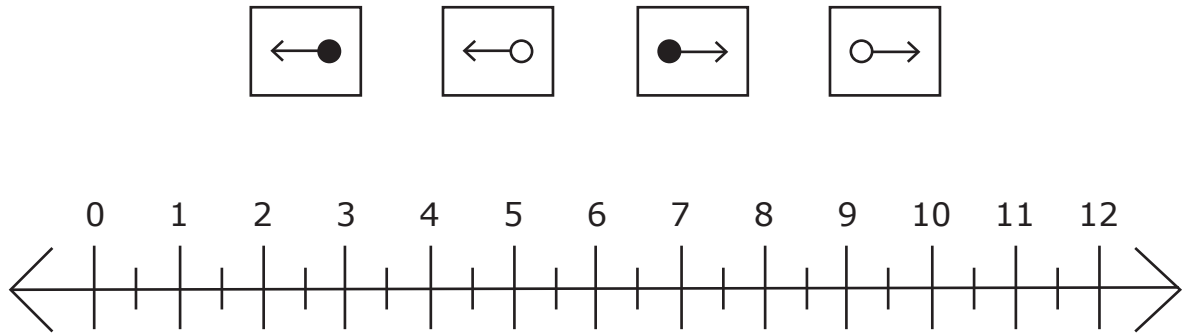
Ⓒ The student purchased a gift for his mom for $18.

Ⓓ The student gave $18 to a friend.

8. A student wants to walk 30 or more total miles this month and has already walked 18 of the 30 total miles. The student walks at a constant speed of 3 miles per hour.

Graph n, all the possible values for the number of additional hours it will take the student to walk at least 30 total miles this month.

Select a ray and then graph the ray so that it begins at the correct place on the number line.



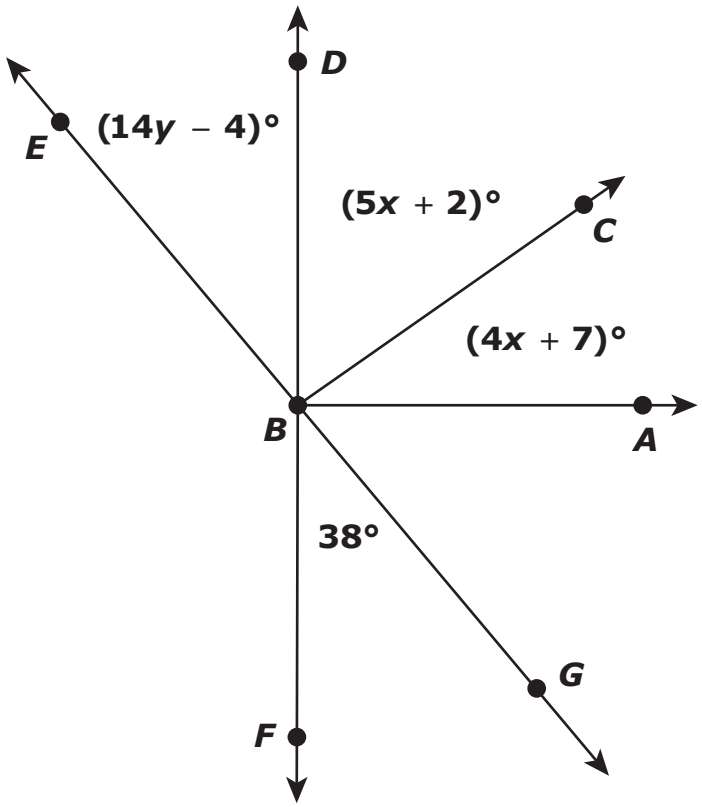
This is the end of Item Set 1 Section 1.

ITEM SET 1 - SECTION 2 (Calculator)

You may use a calculator for Item Set 1 - Section 2.

Use the information provided to answer Part A and Part B for question 9.

The diagram shows angles formed by the intersections of lines and rays.



not to scale

9. Part A

Angles *DBC* and *CBA* are complementary.

What is the measure of angle *DBC*?

Ⓐ 19°

Ⓑ 43°

Ⓒ 45°

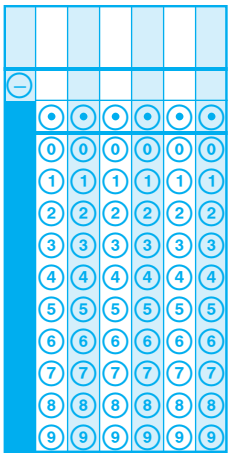
Ⓓ 47°

Part B

Line *EG* and line *DF* intersect at point *B* to form vertical angles *EBD* and *FBG*.

What is the value of *y*?

Enter your answer in the box.



This is the end of Item Set 1 Section 2.

ITEM SET 2 (Calculator)

You may use a calculator for Item Set 2.

Use the information provided to answer Part A through Part D for question 1.

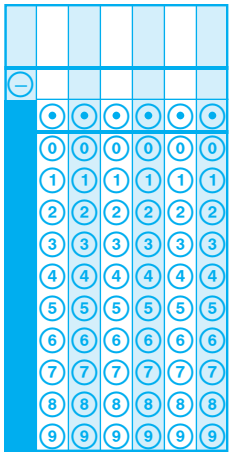
The table shows money conversion rates for the United States dollar (USD), the Caymanian dollar (KYD), the Australian dollar (AUD), the Indian rupee (INR), and the Argentine peso (ARS). Each conversion rate is rounded to the nearest hundredth.

Money Conversion Rate
1 USD = 0.82 KYD
1 USD = 1.32 AUD
1 USD = 64.57 INR
1 USD = 16.22 ARS

1. Part A

Approximately how many AUD are equal to 35 USD?

Enter your answer in the box.



Part B

Approximately how many USD are equal to 50 ARS?

Ⓐ 3.08

Ⓑ 37.88

Ⓒ 66.00

Ⓓ 811.00

Part C

How many INR are equal to 150 AUD? Round to the nearest whole number.

Ⓐ 2

Ⓑ 114

Ⓒ 1,843

Ⓓ 7,338

Part D

How many KYD are equal to 810 ARS? Round your answer to the nearest whole number.

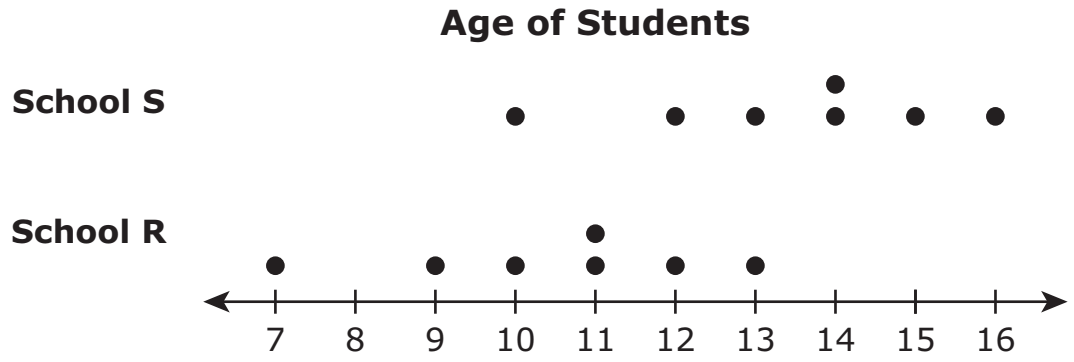
Ⓐ 41

Ⓑ 50

Ⓒ 61

Ⓓ 664

2. Students from two schools attend a game tournament. Data about the age of the students from each school are shown in the line plot.



The mean age, in years, of the students from School R is 10.4. The mean age, in years, of the students from School S is 13.4. The mean absolute deviation for each group of students is about 1.5.

Circle the answer options to correctly complete the sentence.

The difference between the mean ages is _____ ,

3
8.9
11.9

which is about _____ times the mean absolute deviation

0.5
2

for either school.

3. The number of players participating in an online game increases each day. On the day of the game's release, there are no players. One day after the release of the game, there are 1,208 players. Two days after the release, there are 2,398 players. Three days after the release, the game has 3,621 players.

- Create an equation to approximate the number of players, p, that will participate in the game d days after the game's release. Explain how you created this equation.
- Using your equation, estimate how many players there will be 7 days after the game's release.

Enter your equation, your explanation, and your answer in the space provided.

4. Part A

Consider the expression $\frac{1}{2}x + 3 + \frac{1}{3}x - 4$.

Write an equivalent expression with exactly two terms.

Enter your expression in the space provided. Enter **only** your expression.

_____

Part B

A student states that the expressions $\frac{1}{2}(x + 3) + \frac{1}{3}(x - 4)$ and $\frac{1}{2}x + 3 + \frac{1}{3}x - 4$ are equivalent.

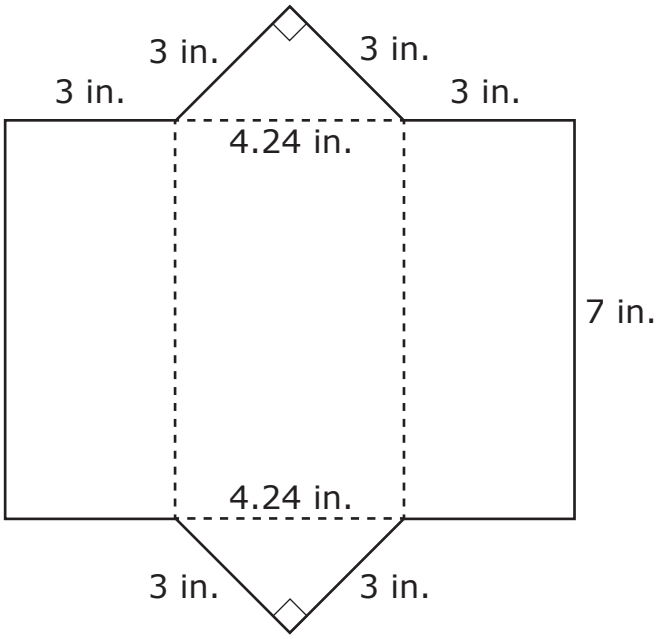
- Explain why the student's reasoning is incorrect.
- Create an expression, with two terms, that is equivalent to $\frac{1}{2}(x + 3) + \frac{1}{3}(x - 4)$. Show your work or explain your reasoning.

Enter your explanations or work and your answer in the space provided.

TURN THE PAGE AND CONTINUE WORKING

5. Part A

A person wants to make a pencil case in the shape of a triangular prism. He traces the outline using the pattern shown.



- Show or explain the steps needed to calculate the amount of material, in square inches, needed to make 1 pencil case.
- What is the amount of material, in square inches, needed to make 1 pencil case?
- Create an expression that can be used to determine the amount of material, in square inches, to make *n* pencil cases.

Enter your explanations, your work, and your answer in the space provided.

Part B

The material for the pencil case is sold in square-shaped pieces that are 1 foot long. Each piece costs $5.

- Find the area, **in square inches**, of one piece of material.
- What is the cost per square inch of the material? Show or explain your work.

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

TURN THE PAGE AND CONTINUE WORKING

Use the information provided to answer Part A and Part B for question 6.

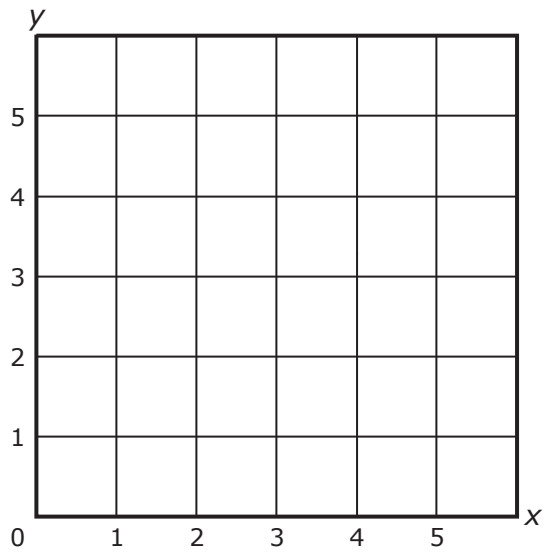
The table shows a proportional relationship between *x* and *y.*

x	***y***
1.5	0.5
4.5	1.5

6. Part A

Plot the relationship between *x* and *y*.

Plot two points on the coordinate plane, and then draw a line through the points.



Part B

- Use the graph to explain how the relationship between x and y is proportional.
- Explain or show mathematically how $(11.25, 3.75)$ is a point on the graph, using the constant of proportionality.

Enter your explanations and your work in the space provided.

Use the information provided to answer Part A and Part B for question 7.

A reporter from the school paper asks a random sample of students about their favorite school food. The results are shown in the table. There are 441 students in total at the school.

Favorite School Food

Favorite School Food	Number of Students
spaghetti	12
salad	15
hamburger	11
pizza	20
other	5

7. Part A

Based on the sample, approximately how many students in the entire school population prefer spaghetti as their favorite school food?

Ⓐ 12

Ⓑ 63

Ⓒ 84

Ⓓ 105

Part B

Based on the sample, which inference can be made?

Ⓐ The number of students who like spaghetti is approximately the same as the number who like hamburgers.

Ⓑ A small number of students bring their own lunch to school.

Ⓒ Most students eat salad or pizza every day.

Ⓓ Almost the whole school prefers pizza.

8. A person can play $\frac{1}{6}$ of a song in $\frac{1}{3}$ of a minute.

How many minutes does it take the person to play the whole song once at this rate?

Ⓐ 3

Ⓑ 2

Ⓒ $\frac{2}{3}$

Ⓓ $\frac{1}{2}$

9. A teacher has an equal number of pink, blue, green, yellow, and purple erasers in a box. She will randomly distribute 1 eraser from the box to each student.

What is the probability that the first eraser that will be distributed is a color other than yellow?

Ⓐ $\frac{1}{5}$

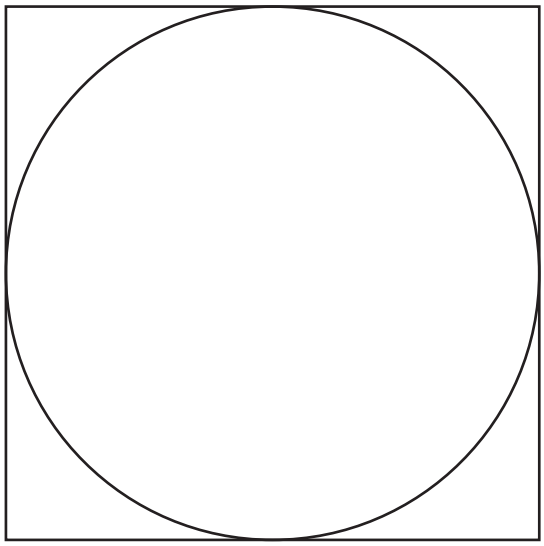
Ⓑ $\frac{1}{4}$

Ⓒ $\frac{3}{4}$

Ⓓ $\frac{4}{5}$

Use the information provided to answer Part A and Part B for question 10.

A circle is inscribed on a square piece of paper. The radius of the circle is 5 centimeters.



10. Part A

What is the circumference, in centimeters, of the circle?

Enter your answer in the space provided. Enter **only** your answer.

_____ **centimeters**

Part B

The circle is cut out and removed from the square. How much paper, in square centimeters, remains after the circle is removed?

Ⓐ $25\pi - 10$

Ⓑ $10\pi - 25$

Ⓒ $100 - (10\pi)$

Ⓓ $100 - (25\pi)$

11. A person is planning an event and wants to order chicken and beans from a store.

- The store charges $9.49 per pound of chicken and $5.75 for one quart of beans.
- The person has $70 to purchase the chicken and the beans.

Let *p* represent the number of pounds of chicken.

- Create an equation that can determine the maximum amount of chicken, in pounds, that can be purchased, along with one quart of beans, using the $70. Do not include tax.
- Solve the equation to determine the maximum amount of chicken that can be purchased. Round your final answer to the nearest quarter pound. Show your work.

Enter your equation, your solution, and your work in the space provided.

Equation: _____

Maximum amount of chicken: _____ **pounds**

Your Work:

This is the end of Item Set 2.

1133112 1 2 3 4 5 A B C D E Printed in the USA ISD35292