

This document contains *Mathematics Practice Test* from the **2008 California High School Exit Examination (CAHSEE): Mathematics Study Guide** published by the California Department of Education. The entire guide is available at <http://www.cde.ca.gov/ta/tg/hs/mathguide.asp>.

Mathematics Practice Test

This is a practice test using sample CAHSEE questions to help you prepare for the CAHSEE. Answer all the questions in the practice test and then check your answers using the ANSWER KEY provided in the back.

When you take the actual CAHSEE, it will be separated into two sessions. Each session will contain 46 multiple-choice questions. Remember that you may take as much time as you need within the regular school day, and you will have a break between Sessions 1 and 2.

This practice test is designed to familiarize you with the CAHSEE test format and the possible types of items you might see on the real test. Since this practice test contains only a few samples of each standard, it cannot be used to accurately predict how you will perform on the CAHSEE.

Becoming familiar with the test may be helpful, but the absolute best way to do well on the mathematics portion of the test is to pay close attention in your math class, ask questions of others when you don't understand something, and complete all your homework. Learning mathematics, like learning another language, requires practice and repetition.

California High School Exit Examination

PRACTICE TEST

1. Which number has the greatest absolute value?

A -17
 B -13
 C 15
 D 19

M12795

2. Between which two integers is the value of $\sqrt{61}$?

A 6 and 7
 B 7 and 8
 C 8 and 9
 D 9 and 10

M22059

3. Use the addition problems below to answer the question.

$$\frac{1}{2} + \frac{1}{4} = \frac{3}{4}$$

$$\frac{1}{2} + \frac{1}{4} + \frac{1}{8} = \frac{7}{8}$$

$$\frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \frac{1}{16} = \frac{15}{16}$$

$$\frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \frac{1}{16} + \frac{1}{32} = \frac{31}{32}$$

Based on this pattern, what is the sum of

$$\frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \frac{1}{16} + \dots + \frac{1}{1024}?$$

- A $\frac{1001}{1024}$
 B $\frac{1010}{1024}$
 C $\frac{1023}{1024}$
 D $\frac{1025}{1024}$

M21115

PRACTICE TEST

4. Traditions Clothing Store is having a sale. Shirts that were regularly priced at \$20 are on sale for \$17. What is the percentage of decrease in the price of the shirts?
- A 3%
B 15%
C 18%
D 85%
- M30820
-
5. Which number equals $(2)^{-4}$?
- A -8
B $-\frac{1}{16}$
C $\frac{1}{16}$
D $\frac{1}{8}$
- M10015
-
6. What is $\frac{3}{4} - \frac{1}{6}$?
- A $\frac{1}{6}$
B $\frac{1}{3}$
C $\frac{7}{12}$
D $\frac{11}{12}$
- M13552
7. A salesperson at a clothing store earns a 2% commission on all sales. How much commission does the salesperson earn on a \$300 sale?
- A \$6
B \$15
C \$60
D \$150
- M20470
-
8. Some students attend school 180 of the 365 days in a year. About what part of the year do they attend school?
- A 18%
B 50%
C 75%
D 180%
- M00047
-
9. What is the value of $\frac{2^6 \cdot 2^4}{2^5}$?
- A 4
B 10
C 16
D 32
- M25206

PRACTICE TEST

10. John uses $\frac{2}{3}$ of a cup of oats per serving to make oatmeal. How many cups of oats does he need to make 6 servings?

- A $2\frac{2}{3}$
B 4
C $5\frac{1}{3}$
D 9

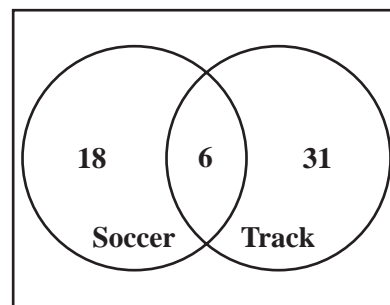
M23015

11. Which expression represents 0.0000007 in scientific notation?

- A 7×10^{-9}
B 7×10^{-7}
C 7×10^7
D 7×10^9

M20956

12. The Venn diagram below shows the number of girls on the soccer and track teams at a high school.



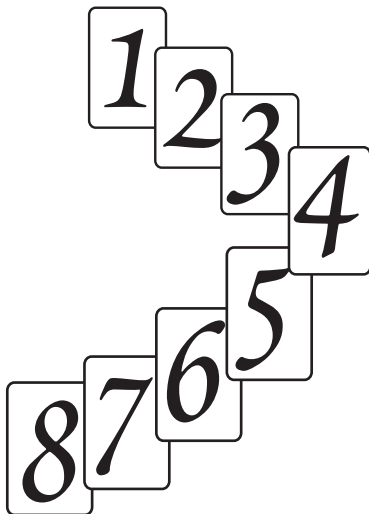
How many girls are on both the soccer and track teams?

- A 6
B 12
C 49
D 55

M21162

PRACTICE TEST

13. These 8 cards are placed face down and shuffled.

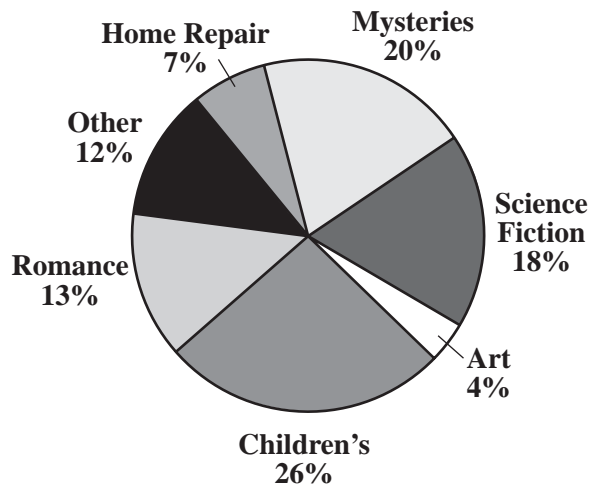


If Beatrice turns over only one card, what is the probability she will get a card with a number less than 4?

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

M25304

14. The Smithburg town library wanted to see what types of books were borrowed most often.



According to the circle graph shown above—

- A more Children's books were borrowed than Romance and Science Fiction combined.
 B more than half of the books borrowed were Children's, Mysteries, and Art combined.
 C more Mysteries were borrowed than Art and Science Fiction combined.
 D more than half of the books borrowed were Romance, Mysteries, and Science Fiction combined.

M02131

California High School Exit Examination

PRACTICE TEST

15. A restaurant is advertising 3-item combination specials that must include a main dish, a vegetable, and a drink.

Lunch Specials

<u>Main Dish</u>	<u>Vegetable</u>	<u>Drink</u>
Chicken	Broccoli	Water
Beef	Carrots	Soft drink
	Peas	Milk
	Corn	

How many 3-item combinations include a soft drink and corn?

- A 2
- B 3
- C 4
- D 8

M13738

16. Donald priced six personal Compact Disc (CD) players. The prices are shown below.

\$21.00, \$23.00, \$21.00, \$39.00, \$25.00, \$31.00

What is the median price?

- A \$21.00
- B \$24.00
- C \$27.00
- D \$30.00

M02964

PRACTICE TEST

17. Michelle read a book review and predicted that the number of girls who will like the book will be more than twice the number of boys who will like the book. Which table shows data that support her prediction?

A

	Number Who Liked the Book
Boys	35
Girls	40

C

	Number Who Liked the Book
Boys	70
Girls	25

B

	Number Who Liked the Book
Boys	35
Girls	80

D

	Number Who Liked the Book
Boys	40
Girls	40

PRACTICE TEST

18. Anna has the letter tiles below in a bag.

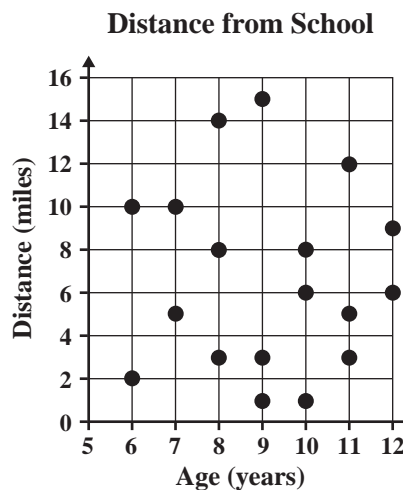
S T A T I S T I C S

She reached in the bag and pulled out an S. She then put the tile back in the bag. If Anna randomly selects a tile from the bag, what is the probability she will select an S again?

- A $\frac{1}{5}$
- B $\frac{2}{9}$
- C $\frac{3}{10}$
- D $\frac{1}{3}$

M25311

19. The scatterplot below shows the ages of some children and the distance each child lives from school.



Which statement **BEST** describes the relationship between age and distance from school?

- A As age increases, the distance from school increases.
- B As age increases, the distance from school decreases.
- C As age increases, the distance from school remains constant.
- D There is no relationship between age and distance from school.

M10565

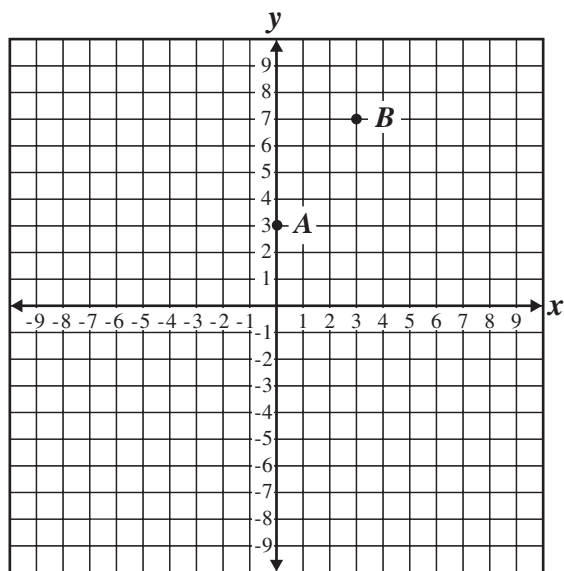
PRACTICE TEST

20. At a local bookstore, books that normally cost b dollars are on sale for 10 dollars off the normal price. How many dollars does it cost to buy 3 books on sale?

- A $3b - 10$
- B $3b + 10$
- C $3(b - 10)$
- D $3(b + 10)$

M10375

21. If a line passes through the points A and B shown below, approximately where does the line cross the x -axis?



- A between -3 and -2
- B between 0 and -1
- C between 0 and 1
- D between 1 and 2

M10702

22. Which expression is equivalent to $7a^2b \cdot 7bc^2$?

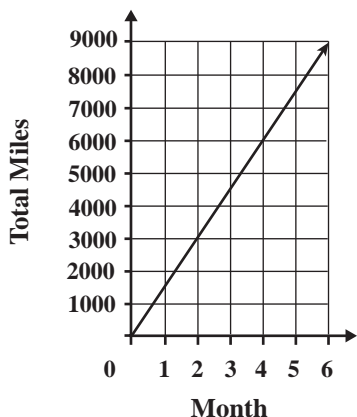
- A $14a^2b^2c^2$
- B $49a^2bc^2$
- C $49a^2b^2c^2$
- D $343a^2b^2c^2$

M12872

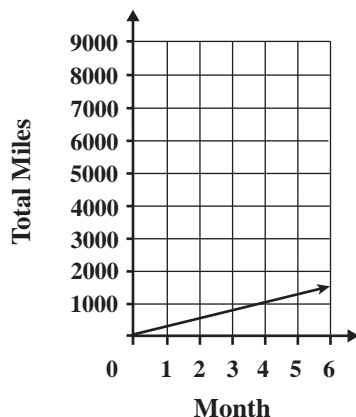
PRACTICE TEST

23. Mario drives 1500 miles every month. Which line plot correctly represents Mario's total miles driven over a period of six months?

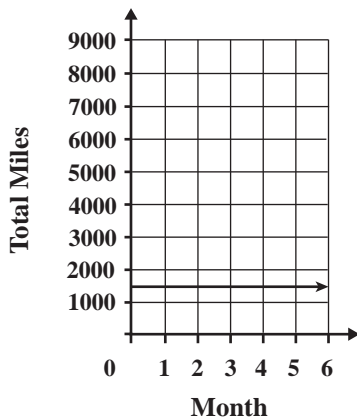
A



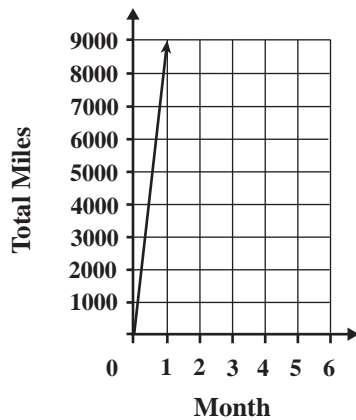
C



B



D



PRACTICE TEST

24. The temperature on a mountain peak was 7 degrees Fahrenheit ($^{\circ}\text{F}$) at 6:00 p.m. By 8:00 p.m., the temperature had dropped to 0°F . If the temperature continued to drop at about the same rate, which is the **BEST** estimate of the temperature at 11:00 p.m.?

- A -20°F
 B -14°F
 C -10°F
 D -9°F

M20451

25. Brad bought a \$6 binder and several packs of paper that cost \$0.60 each. If his total was \$13.20, how many packs of paper did Brad buy?

- A 2
 B 6
 C 12
 D 22

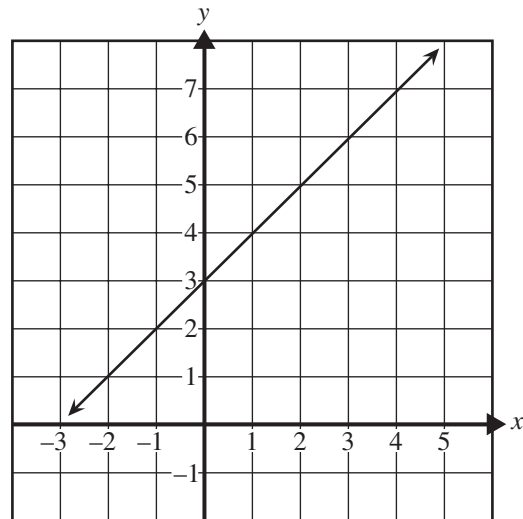
M12223

26. What is the value of $(3 + 5^2) \div 4 - (x + 1)$ when $x = 7$?

- A -7
 B -1
 C 8
 D 10

M12963

27. What is the equation of the graph shown below?

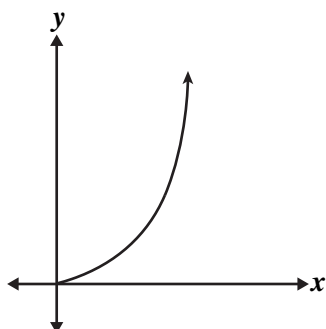


- A $y = x - 1$
 B $y = x + 1$
 C $y = x + 3$
 D $y = x - 3$

M02035

PRACTICE TEST

28. Which equation BEST represents the part of the graph shown below?



- A $y = 1.75x$
- B $y = 1.75x^2$
- C $y = -1.75x$
- D $y = -1.75x^2$

M10760

29. Lisa typed a 1000-word essay at an average rate of 20 words per minute. If she started typing at 6:20 p.m. and did not take any breaks, at what time did Lisa finish typing the essay?

- A 6:40 p.m.
- B 6:50 p.m.
- C 7:00 p.m.
- D 7:10 p.m.

M13652

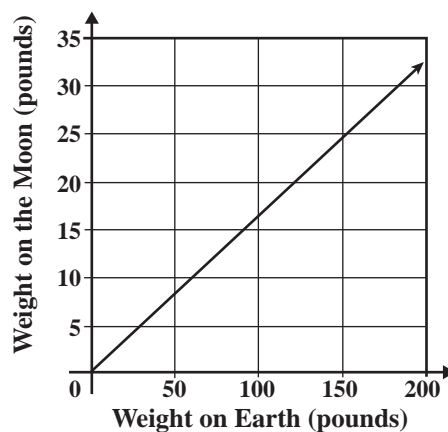
30. What does x^5 equal when $x = -2$?

- A -32
- B -10
- C $-\frac{1}{32}$
- D 32

M12857

31. The graph below compares the weight of an object on Earth to its weight on the Moon.

An Object's Weight on the Moon



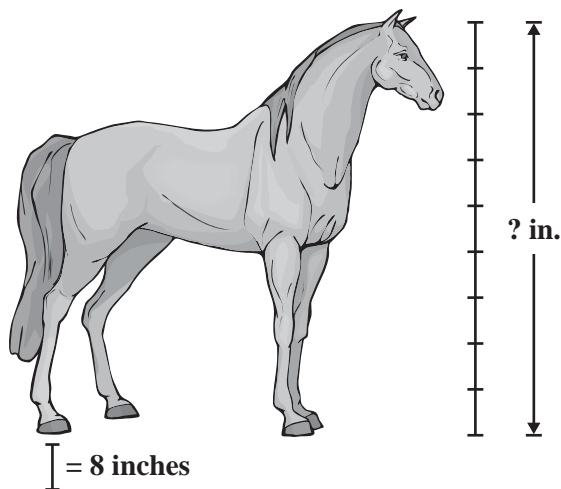
What is the approximate weight on the Moon of an astronaut who weighs 120 pounds on Earth?

- A 15 pounds
- B 20 pounds
- C 25 pounds
- D 30 pounds

M10668

PRACTICE TEST

32. A scale drawing of a horse is shown below.



What is the actual height of the horse, in inches (in.), from the hoof to the top of the head?

- A 56
- B 64
- C 72
- D 80

M32040

33. A shipping company has 25 offices that shipped 60,000 packages last week. The offices were open 6 days and used 80,000 kilowatt-hours of electricity. Which pieces of information given above are necessary to find the average number of packages shipped per day last week?

- A the number of offices and the number of packages
- B the number of packages and the amount of electricity used
- C the number of packages and the number of days open during the week
- D the number of days open during the week and the amount of electricity used

M10538

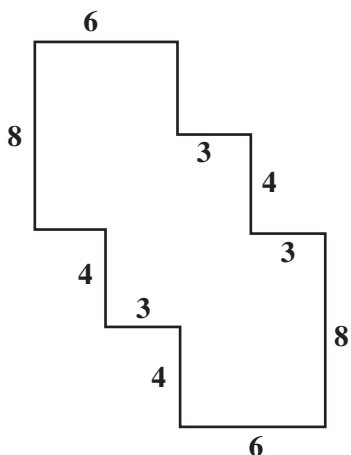
34. A landscaper estimates that landscaping a new park will take 1 person 48 hours. If 4 people work on the job and they each work 6-hour days, how many days are needed to complete the job?

- A 2
- B 4
- C 6
- D 8

M11541

PRACTICE TEST

35. In the figure below, every angle is a right angle.



What is the area, in square units, of the figure?

- A 96
- B 108
- C 120
- D 144

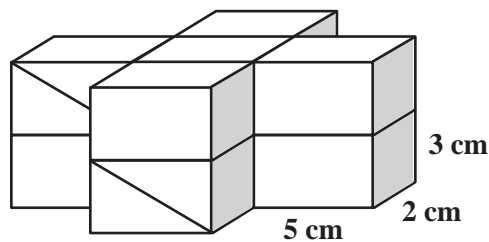
M10790

36. A rectangular field is 363 feet long and 240 feet wide. How many acres is the field? (1 acre = 43,560 square feet)

- A 2
- B 3
- C 4
- D 5

M13918

37. The object below is made of ten rectangular prisms, each with dimensions of 5 centimeters (cm) by 3 cm by 2 cm. What is the volume, in cubic centimeters, of the object?

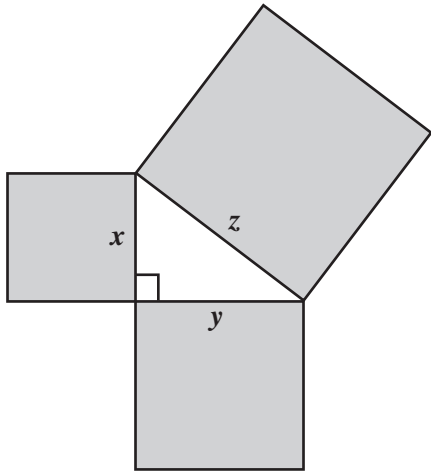


- A 100
- B 150
- C 250
- D 300

M30226

PRACTICE TEST

38. In the drawing below, the figure formed by the squares with sides that are labeled x , y , and z is a right triangle.

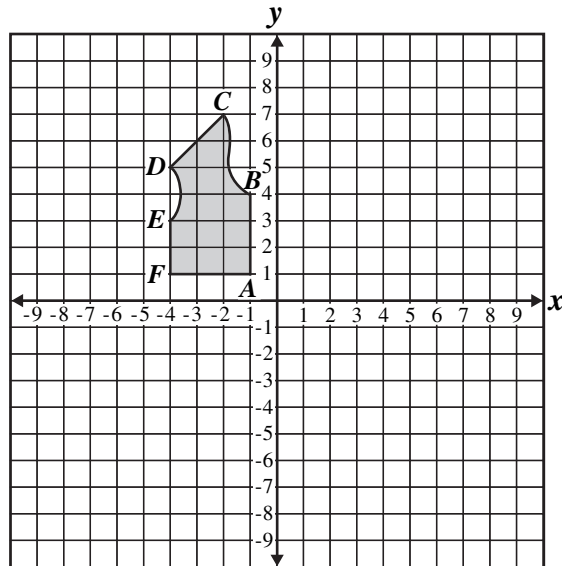


Which equation is true for all values of x , y , and z ?

- A $x + y = z$
- B $x^2 + y^2 = z^2$
- C $x^2 \cdot y^2 = z^2$
- D $\frac{1}{2}xy = z$

M25150

39. A clothing company created the following diagram for a vest.



To show the other side of the vest, the company will reflect the drawing across the y -axis. What will be the coordinates of C after the reflection?

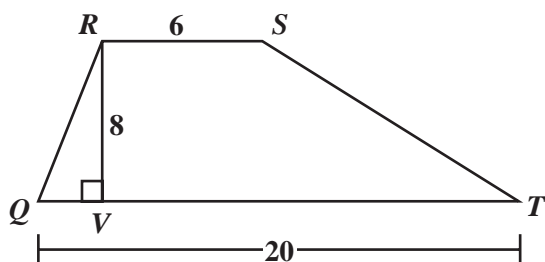
- A $(2, 7)$
- B $(7, 2)$
- C $(-2, -7)$
- D $(-2, 7)$

M10640

PRACTICE TEST

40. What is the area, in square units, of trapezoid $QRST$ shown below?

$$\left[A = \frac{1}{2}h(b_1 + b_2) \right]$$



- A 68
- B 104
- C 208
- D 960

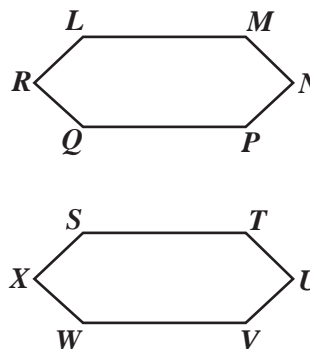
M12087

41. One millimeter is—

- A $\frac{1}{1000}$ of a meter.
- B $\frac{1}{100}$ of a meter.
- C 100 meters.
- D 1000 meters.

M00276

42. In the diagram below, hexagon $LMNPQR$ is congruent to hexagon $STUVWX$.



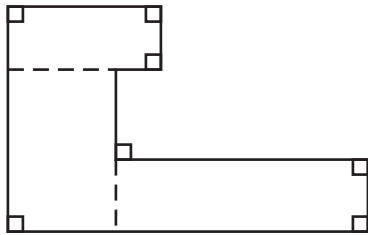
Which side is the same length as \overline{MN} ?

- A \overline{NP}
- B \overline{TU}
- C \overline{UV}
- D \overline{WX}

M13069

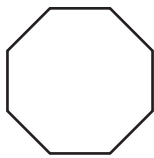
PRACTICE TEST

43. Mia found the area of this shape by dividing it into rectangles as shown.

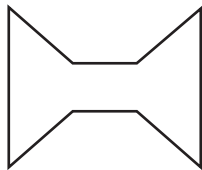


Mia could use the same method to find the area for which of these shapes?

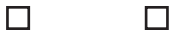
A



C



B



D



M25128

44. Simplify.

$$(x^2 - 3x + 1) - (x^2 + 2x + 7)$$

- A $x - 6$
 B $-x + 8$
 C $-5x - 6$
 D $2x^2 - x + 8$

M03355

45. What are the coordinates of the x -intercept of the line $3x + 4y = 12$?

- A $(0, 3)$
 B $(3, 0)$
 C $(0, 4)$
 D $(4, 0)$

M02462

46. Which of the following statements describes parallel lines?

- A Same y -intercept but different slopes
 B Same slope but different y -intercepts
 C Opposite slopes but same x -intercepts
 D Opposite x -intercepts but same y -intercept

M02610

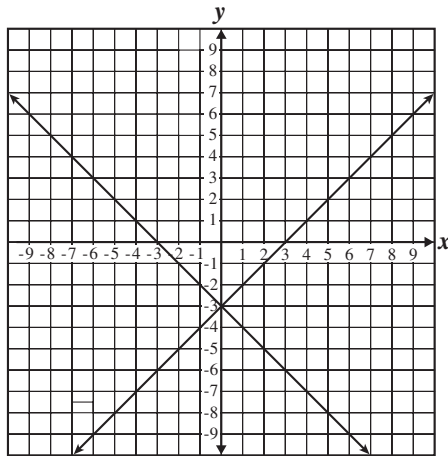
PRACTICE TEST

47. Which graph represents the system of equations shown below?

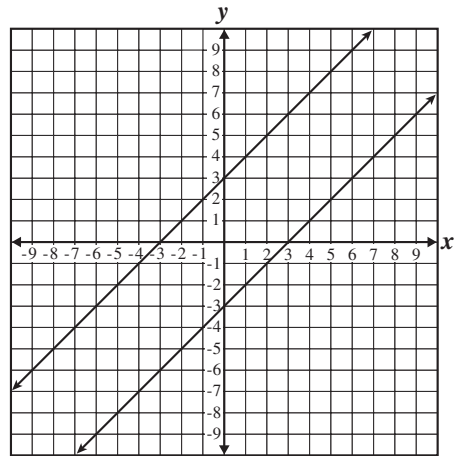
$$y = -x + 3$$

$$y = x + 3$$

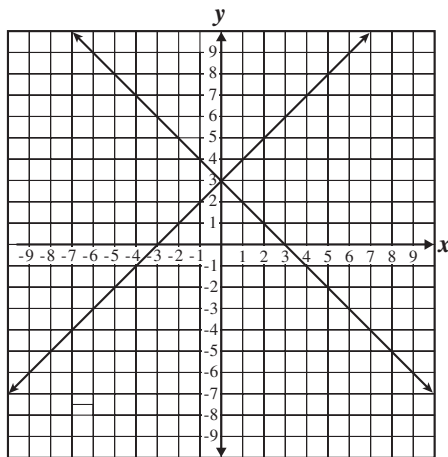
A



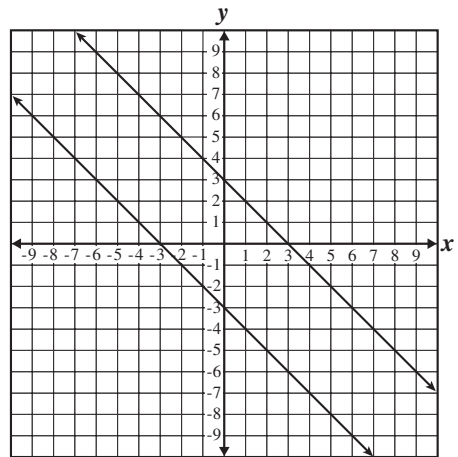
C



B



D



PRACTICE TEST

48. Yoshi has exactly one dollar in dimes (10 cents) and nickels (5 cents). If Yoshi has twice as many dimes as nickels, how many nickels does she have?

A 4
 B 8
 C 12
 D 15

M02410

49. What are all the possible values of x such that $10|x| = 2.5$?

A 0.25 and -0.25
 B 4 and -4
 C 4.5 and -4.5
 D 25 and -25

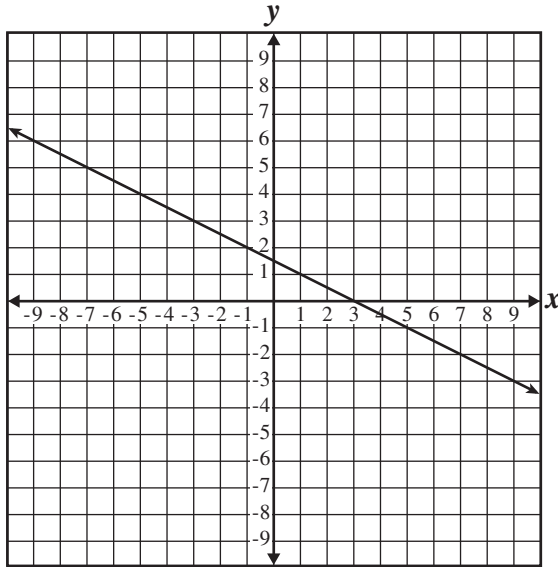
M12992

50. Which of the following is equivalent to $1 - 2x > 3(x - 2)$?

A $1 - 2x > 3x - 2$
 B $1 - 2x > 3x - 5$
 C $1 - 2x > 3x - 6$
 D $1 - 2x > 3x - 7$

M02231

51. Which equation represents the line on the graph below?



A $x + 2y = 3$
 B $x + 2y = 5$
 C $2x + y = 9$
 D $4x + 2y = 3$

M22072

California High School Exit Examination

PRACTICE TEST

52. Colleen solved the equation $2(2x + 5) = 8$ using the following steps.

Given: $2(2x + 5) = 8$

Step 1: $4x + 10 = 8$

Step 2: $4x = -2$

Step 3: $x = -\frac{1}{2}$

To get from Step 2 to Step 3, Colleen—

- A divided both sides by 4.
- B subtracted 4 from both sides.
- C added 4 to both sides.
- D multiplied both sides by 4.

M03139

53. What is the reciprocal of $\frac{ax^2}{y}$?

A $-\frac{ax^2}{y}$

B $-\frac{y}{ax^2}$

C $\frac{ax^2}{y}$

D $\frac{y}{ax^2}$

M13174

California High School Exit Examination

OVERVIEW OF THE STANDARDS

The mathematics part of the CAHSEE tests 6 broad categories, called strands. These strands come from grades 6 and 7, plus Algebra I. These are the formal descriptions of those 6 categories and the number of test questions from each category that appear on the CAHSEE.

<p><input type="checkbox"/> Number Sense (NS): Students demonstrate a foundational understanding of numbers and ways they are represented. (14 multiple-choice questions)</p>
<p><input type="checkbox"/> Statistics, Data Analysis, Probability (PS): Students determine ways to collect, analyze, organize, and display data. (12 multiple-choice questions)</p>
<p><input type="checkbox"/> Algebra and Functions (AF): Students formalize patterns, functions, and generalizations; work with algebraic symbols, expressions with variables, and graphical representations; understand different meanings and uses of variables; develop concepts of proportionality; and recognize and generate equivalent expressions, solve linear equations, and effectively use formulas. (17 multiple-choice questions)</p>
<p><input type="checkbox"/> Measurement and Geometry (MG): Students select and use appropriate units; estimate and calculate measurements for the length, area, and volume of geometric figures; understand scaling in scale drawings and how changes in linear dimension affect area and volume; and solve problems involving dimensional analysis and conversion from one unit to another. (17 multiple-choice questions)</p>
<p><input type="checkbox"/> Mathematical Reasoning (MR): Students analyze problems, use inductive and deductive reasoning, evaluate the reasonableness of solutions, generalize results, and apply them to new problems. (8 multiple-choice questions)</p>
<p><input type="checkbox"/> Algebra I (1A): Students calculate with symbols and demonstrate symbolic reasoning. (12 multiple-choice questions)</p>

These are the strands that will appear on your student score report. These broad categories are defined more specifically by “standards.” The mathematics portion of the CAHSEE measures 53 standards. The pages following the Practice Test describe those standards, the types of test questions that measure the standards, and strategies you can use to pass the CAHSEE.