

19

From your punch-out tools, use the ruler to help you solve this problem.

Study the map below.



What is the approximate straight-line distance between Cortez and Grand Junction?



- $\bigcirc$  100 miles
- 130 miles
- 170 miles

# This item appeared at two adjacent grade levels.

## Grade 7

Standard 5.3a: Measurement Subcontent Area: not assigned **Grade 8** Standard 5.3a: Measurement Subcontent Area: proportional thinking



20

Students are going on a field trip to the Colorado History Museum. They will ride on 3 buses. Each bus seats a maximum of 40 students. Study the table below, which shows the proportion of seats occupied on each bus.

Bus	Seats Occupied
1	60%
2	0.85
3	$\frac{7}{8}$

How many students are on each bus? In the space below, show your work and write your answers on the lines.

Bus 1	Bus 2	Bus 3

# CSAP Mathematics

**21** A tree frog is 10 feet ahead of a bullfrog. Every time the tree frog jumps 1 foot, the bullfrog jumps 3 feet. How many times will the bullfrog have to jump to catch up with the tree frog?

In the space below, explain or show how you found your answer and write your answer on the line. You may use charts, diagrams, or words in your explanation.



jumps



# Page 38



**22** A bag contains 2 green cubes, 3 blue cubes, and 5 red cubes. Nick places his hand in the bag and picks a cube without looking. What is the probability that he picks either a blue or a red cube?



## This item appeared at only one grade level.

## Grade 8

Standard 3.6b: Data Analysis, Probability, and Statistics Subcontent Area: not assigned

## Page 40



**23** From your punch-out tools, use the tangrams to help you solve this problem.

Study the square below.



*Part A* The area of triangle K is 9 square inches. Find the perimeter of square ABCD. In the space below, show your work and write your answer on the line.



© Colorado Department of Education Page may be reproduced electronically. Page 41





What is the ratio of the area of parallelogram LMNO to the area of square ABCD? In the space below, show your work and write your answer on the line.





**24** Jerry is planning a rectangular garden with an area of 24 square feet.

*Part A* On the grid below, draw as many differently shaped rectangles as possible with areas of 24 square feet. Label the length and width of each rectangle you draw. Use only whole numbers for the length and width.





# Page 44

*Part B* Find the perimeter of each rectangle you drew for Part A on page 5. On the grid for Part A, record the perimeter inside each rectangle you drew.

Check your work on the grid.

- Did you label the length and width of each rectangle?
- Did you record the perimeter inside each rectangle?

**Part** C Jerry needs to purchase fencing materials for his rectangular garden. Around which rectangular garden would building a fence cost the least? In the space below, explain or show how you found your answers and write your answers on the lines. You may use charts, diagrams, or words in your explanation.

Length	Width	-	

record—write down



**25** Study the information below.

Page 48

- While exercising, a person should maintain a heart rate that ranges between 70% and 80% of his or her **maximum** heart rate.
- Maximum heart rate = 220 age, in years (of person exercising)
- Heart rate is measured in heartbeats per minute.

*Part A* Jennifer, who is 24 years old, is beginning an exercise program. Using the information, find the approximate range within which Jennifer should attempt to maintain her heart rate while exercising. In the space below, show your work and write your answer on the lines.

between	and	heartbeats per minute

**Part B** While exercising, Charlie should attempt to maintain a heart rate between 112 and 128 heartbeats per minute. Using the information, find Charlie's age. In the space below, show your work and write your answer on the line.





**27** The pressure of salt water, in atmospheres, depends on the depth below the water's surface, in feet, as shown in the following equation.

$$Pressure = 1 + \frac{depth}{33}$$

*Part A* Complete the table below.

Pressure (in atmospheres)	Depth (in feet)
1	
2	
3	
4	

*Part B* On the grid below, graph the data from the table.

Be sure to

- title the graph
- label each axis
- use appropriate scales



## CSAP Mathematics Scoring Guide

#### Rubric

## **Exemplary Response**

Part A

Part B

Pressure (in atmospheres)	Depth (in feet)
1	0
2	33
3	66
4	99



Score Points: Apply 2-point holistic rubric.

## This item appeared at two adjacent grade levels.

#### Grade 8

Standard 2.2a: Patterns, Functions, and Algebra Subcontent Area: linear pattern representation

## Grade 9

Standard 2.2a: Patterns, Functions, and Algebra Subcontent Area: multiple representations of linear/nonlinear functions

