

# Preparing for FCAT

## Gridded Response Questions Grade 9

Today we are going to talk about how to answer questions requiring a gridded response.

Hand out the student copy sheet with instructions on how to grid on one side and the grid sheet on the back side.

Go over the instructions together and practice gridding the following answers.

- 250
- 1/15
- 3.54

Next, tell the students that we are going to look at 12 problems that require a gridded response and look at the level of difficulty and the percentage of students who missed the problem. We will be discussing why students may miss each problem as we go through the slides.

Question 1

The population of a town is 13,000 and is increasing by about 250 people per year. This information can be represented by the following equation, where  $y$  represents the number of years and  $p$  represents the population.

$$P = 13,000 + 250y$$

According to the equation above, in how many years will the population of the town be 14,500 ?

Content Difficulty: Low

Content Focus: Equations

Percentage of students answering incorrectly: 26%

Before students work on a solution, ask them to read the question and see if they can determine why 26% of the students missed it.

Have students solve the problem and grid their response on the grid page provided.

The correct answer is: 6

Walk students through the problem to clear up any misunderstandings

Question 2

In 1990, the city of St. Petersburg, Florida, had the greatest population density of any city in the state, about 3,040 persons per square mile. The city of Inverness, Florida, had a population density equal to  $\frac{1}{19}$  the density of St. Petersburg. What was the population density of Inverness, in persons per square mile?

Content Difficulty: Low

Content Focus: Solving Real World Problems involving Fractions/Decimals

Percentage of students answering incorrectly: 43%

Before students work on a solution, ask them to read the question and see if they can determine why 43% of the students missed it.

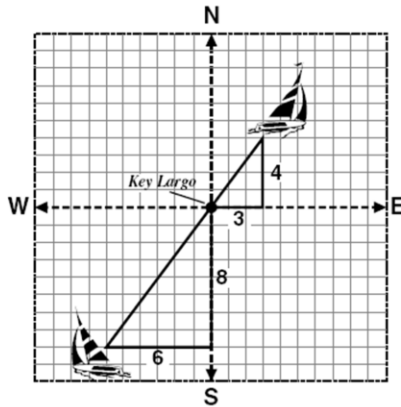
Have students solve the problem and grid their response on the grid page provided.

The correct answer is: 159.9

Walk students through the problem to clear up any misunderstandings

Question 3

Two sailboats leave Key Largo, Florida. One of the sailboats travels 3 miles east and then 4 miles north. The second sailboat travels 8 miles south and 6 miles west.



How far apart, in miles, are the boats?

Content Difficulty: Moderate

Content Focus: Solving Real World Problems involving Fractions/Decimals

Percentage of students answering incorrectly: 79%

Draw the picture provided on the marker board.

Before students work on a solution, ask them to read the question and see if they can determine why 79% of the students missed it.

Have students solve the problem and grid their response on the grid page provided.

The correct answer is: 15

Walk students through the problem to clear up any misunderstandings

Question 4

Mike delivers pizzas for a restaurant. He is paid \$5 per hour worked plus \$3 for each pizza delivered. Last week Mike worked 35 hours and earned \$265. This week Mike wants to earn \$295. If Mike works the same number of hours, how many **more** pizzas must Mike deliver this week than he delivered last week?

Content Difficulty: Moderate

Content Focus: Changing Cost Parameters

Percentage of students answering incorrectly: 42%

Before students work on a solution, ask them to read the question and see if they can determine why 42% of the students missed it.

Have students solve the problem and grid their response on the grid page provided.

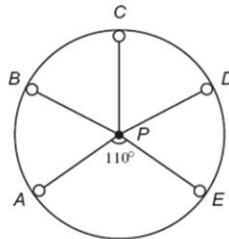
The correct answer is: 10

Walk students through the problem to clear up any misunderstandings

Question 5

Sergio works at his father's electronics shop after school. He needs to drill a hole at each of the points  $A$ ,  $B$ ,  $C$ ,  $D$ , and  $E$  on circle  $P$ , as shown below.

CIRCUIT BOARD



If Sergio drills the holes so that  $\angle APE$  measures  $110^\circ$  and the other 4 central angles are congruent to each other, what will be the measure of  $\angle CPD$  ?

Content Difficulty: Moderate

Content Focus: Angle Measures

Percentage of students answering incorrectly: 63%

Draw the diagram provided on the marker board.

Before students work on a solution, ask them to read the question and see if they can determine why 63% of the students missed it.

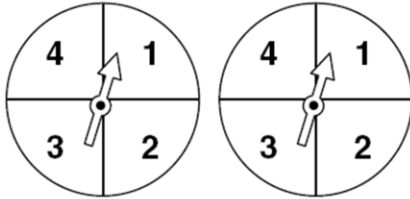
Have students solve the problem and grid their response on the grid page provided.

The correct answer is: 62.5

Walk students through the problem to clear up any misunderstandings

Question 6

Jesse and Jordan are playing a game using two spinners. Each spinner contains the numbers 1, 2, 3, and 4. The spinner is equally likely to stop on any of the four numbers.



In the game, a player spins both spinners and calculates the product of the two numbers on which the spinners stopped.

What **product** has the greatest probability of occurring in this game?

Content Difficulty: Moderate

Content Focus: Single Event Probability

Percentage of students answering incorrectly: 68%

Draw the diagram provided on the marker board.

Before students work on a solution, ask them to read the question and see if they can determine why 68% of the students missed it.

Have students solve the problem and grid their response on the grid page provided.

The correct answer is: 4

Walk students through the problem to clear up any misunderstandings

Question 7

A pyrometer is an instrument used to record very high temperatures. It produces a small electric current called a microampere when exposed to heat. The microampere reading indicates the temperature of the substance being measured. The linear relation is shown in the table below.

**PYROMETER MEASUREMENTS**

Pyrometer Reading (microamperes)	Temperature (degrees Fahrenheit)
5.00	300.0
5.94	356.4
6.88	412.8
7.82	

What should be the temperature, in degrees Fahrenheit, if the pyrometer reading is 7.82 microamperes?

Content Difficulty: Moderate

Content Focus: Numerical Patterns

Percentage of students answering incorrectly: 26%

Before students work on a solution, ask them to read the question and see if they can determine why 26% of the students missed it.

Have students solve the problem and grid their response on the grid page provided.

The correct answer is: 469.2

Walk students through the problem to clear up any misunderstandings

Question 8

Monica's father owns a racecar. The table below lists 5 racecar finishing times for recent practice trials.

**TIMES FOR PRACTICE TRIALS**

Trial	Time (in seconds)
1	5.09
2	5.10
3	4.95
4	4.91
5	5.05

What is the **mean** time, in seconds, for the 5 practice trials?

Content Difficulty: Low

Content Focus: Mean

Percentage of students answering incorrectly: 22%

Before students work on a solution, ask them to read the question and see if they can determine why 22% of the students missed it.

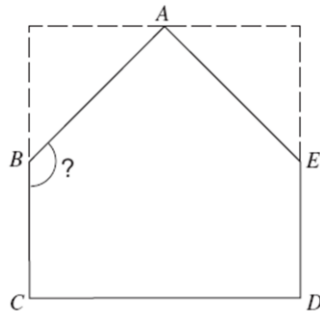
Have students solve the problem and grid their response on the grid page provided.

The correct answer is: 5.02

Walk students through the problem to clear up any misunderstandings

Question 9

Home plate on a baseball field has a shape that is a square with two isosceles right triangles removed from 2 adjacent corners.



What is the measure of angle  $ABC$  ?

Content Difficulty: Moderate

Content Focus: Interior Angles of a Polygon

Percentage of students answering incorrectly: 73%

Draw the diagram provided on the Marker Board.

Before students work on a solution, ask them to read the question and see if they can determine why 73% of the students missed it.

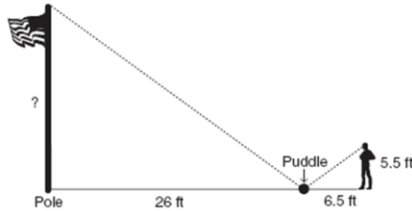
Have students solve the problem and grid their response on the grid page provided.

The correct answer is: 135

Walk students through the problem to clear up any misunderstandings

Question 10

As shown in the drawing, Raymond used similar triangles to find the height of a pole. When he stood 6.5 feet from a small puddle, he could see the reflection of the top of the pole in the puddle. The puddle was 26 feet from the pole, and Raymond's eye level was 5.5 feet above the ground.



What is the height of the pole in feet?

Content Difficulty:  
Moderate

Content Focus: Similar Figures

Percentage of students answering incorrectly: 62%

Draw the diagram provided on the Marker Board.

Before students work on a solution, ask them to read the question and see if they can determine why 62% of the students missed it.

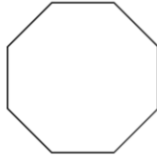
Have students solve the problem and grid their response on the grid page provided.

The correct answer is: 22

Walk students through the problem to clear up any misunderstandings

Question 11

Sally is making a mosaic with ceramic tiles shaped like regular octagons, as shown in the diagram below.



She marked all of the lines of symmetry on one tile to form triangular pieces. If she cut the tile along all of its marked lines of symmetry, what is the **total** number of triangular pieces formed?

Content Difficulty: Moderate

Content Focus: Symmetry

Percentage of students answering incorrectly: 80%

Before students work on a solution, ask them to read the question and see if they can determine why 80% of the students missed it.

Have students solve the problem and grid their response on the grid page provided.

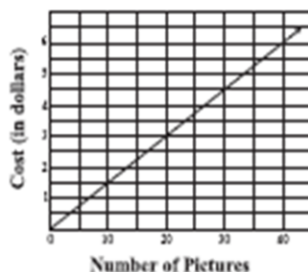
The correct answer is: 16

Walk students through the problem to clear up any misunderstandings

Question 12

The graph below represents the cost to print duplicate pictures.

**COST OF PRINTING DUPLICATE PICTURES**



The Sabos just returned from a trip to Costa Rica. After developing their ten rolls of film, they decided to print duplicate copies of some of their pictures. They chose a total of 60 pictures for duplication. What will be the cost to print 60 duplicates?

Content Difficulty: Moderate

Content Focus: Graphing Equations and Inequalities

Percentage of students answering incorrectly: 62%

Draw the diagram provided on the Marker Board.

Before students work on a solution, ask them to read the question and see if they can determine why 62% of the students missed it.

Have students solve the problem and grid their response on the grid page provided.

The correct answer is: 9

Walk students through the problem to clear up any misunderstandings