2006

FCAT

Florida Comprehensive Assessment Test®

Student Name

MATHEMATICS

SUNSHINE STATE STANDARDS

TEST BOOK

GRADE

10

Released: August 2006

Last used: Summer 2006

MATHEMATICS

47650

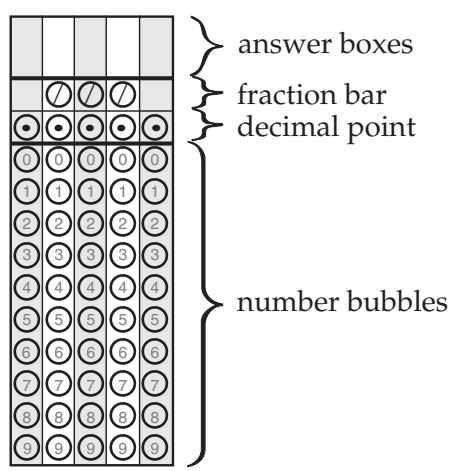
This symbol appears next to questions that require you to fill in your answer on a grid in your answer book. Answers may be gridded using several correct formats. You MUST fill in the bubbles accurately to receive credit for your answer.

Directions for Completing the Response Grid

1. Work the problem and find an answer.
2. Write your answer in the answer boxes at the top of the grid.
   - Print your answer with the first digit in the left answer box, OR with the last digit in the right answer box.
   - Print only one digit or symbol in each answer box. Do NOT leave a blank answer box in the middle of an answer.
   - Be sure to write a decimal point or fraction bar in the answer box if it is part of the answer.
3. Fill in a bubble under each box in which you wrote your answer.
   - Fill in one and ONLY one bubble for each answer box. Do NOT fill in a bubble under an unused answer box.
   - Fill in each bubble by making a solid black mark that completely fills the circle.
   - You MUST fill in the bubbles accurately to receive credit for your answer.

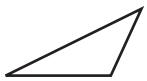
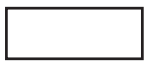
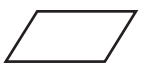
Parts of a Response Grid

Response grids have these parts:



Grades 9–10 FCAT Mathematics Reference Sheet

Area

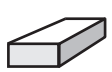
	Triangle	$A = \frac{1}{2}bh$
	Rectangle	$A = lw$
	Trapezoid	$A = \frac{1}{2}h(b_1 + b_2)$
	Parallelogram	$A = bh$
	Circle	$A = \pi r^2$

KEY	
b = base	d = diameter
h = height	r = radius
l = length	A = area
w = width	C = circumference
ℓ = slant height	V = volume
$S.A.$ = surface area	

Use 3.14 or $\frac{22}{7}$ for π.

Circumference

$C = \pi d$ or $C = 2\pi r$

		Volume/Capacity	Total Surface Area
	Right Circular Cone	$V = \frac{1}{3}\pi r^2 h$	$S.A. = \frac{1}{2}(2\pi r)\ell + \pi r^2$ or $S.A. = \pi r\ell + \pi r^2$
	Right Square Pyramid	$V = \frac{1}{3}lwh$	$S.A. = 4(\frac{1}{2}l\ell) + l^2$ or $S.A. = 2l\ell + l^2$
	Sphere	$V = \frac{4}{3}\pi r^3$	$S.A. = 4\pi r^2$
	Right Circular Cylinder	$V = \pi r^2 h$	$S.A. = 2\pi rh + 2\pi r^2$
	Rectangular Prism	$V = lwh$	$S.A. = 2(lw) + 2(hw) + 2(lh)$

In the following formulas, n represents the number of sides.

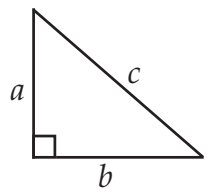
- In a polygon, the sum of the measures of the interior angles is equal to $180(n-2)$.
- In a regular polygon, the measure of an interior angle is equal to $\frac{180(n-2)}{n}$.

Fold and Tear Carefully Along Dotted Line.

This FCAT Mathematics Reference Sheet is for use only on the SSS FCAT Mathematics Test.

Grades 9–10 FCAT Mathematics Reference Sheet

Pythagorean theorem:



$$a^2 + b^2 = c^2$$

Slope-intercept form of an equation of a line:

$$y = mx + b$$

where m = slope and b = the y-intercept.

Distance, rate, time formula:

$$d = rt$$

where d = distance, r = rate, t = time.

Distance between two points $P_1(x_1, y_1)$ and $P_2(x_2, y_2)$:

$$\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

Midpoint between two points $P_1(x_1, y_1)$ and $P_2(x_2, y_2)$:

$$\left(\frac{x_2 + x_1}{2}, \frac{y_2 + y_1}{2}\right)$$

Simple interest formula:

$$I = prt$$

where p = principal, r = rate, t = time.

Conversions

1 yard = 3 feet = 36 inches
1 mile = 1760 yards = 5280 feet
1 acre = 43,560 square feet
1 hour = 60 minutes
1 minute = 60 seconds

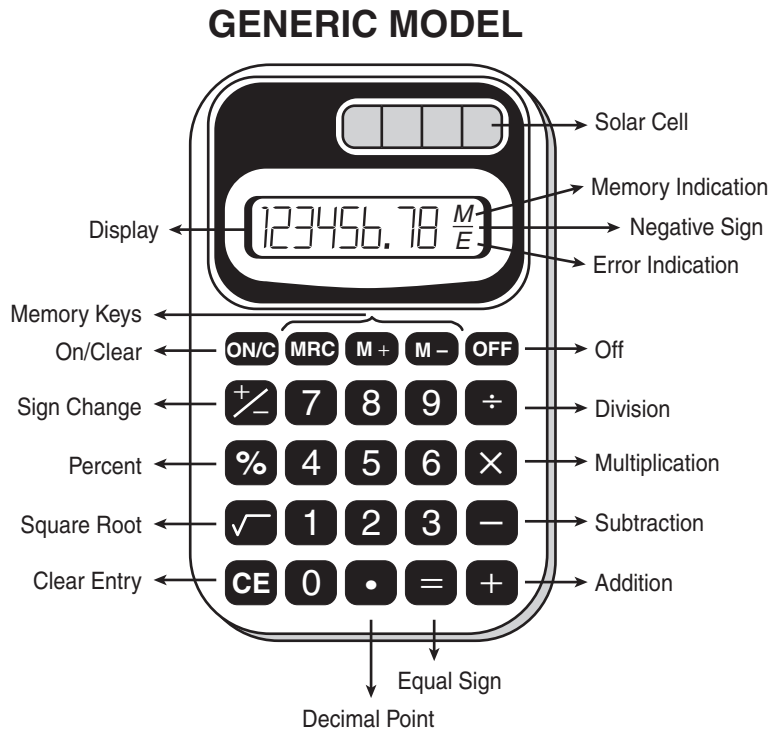
1 cup = 8 fluid ounces
1 pint = 2 cups
1 quart = 2 pints
1 gallon = 4 quarts

1 liter = 1000 milliliters = 1000 cubic centimeters
1 meter = 100 centimeters = 1000 millimeters
1 kilometer = 1000 meters
1 gram = 1000 milligrams
1 kilogram = 1000 grams

1 pound = 16 ounces
1 ton = 2000 pounds

Metric numbers with four digits are presented without a comma (e.g., 9960 kilometers). For metric numbers greater than four digits, a space is used instead of a comma (e.g., 12 500 liters).

This is a picture of a generic calculator and its parts.



HELPFUL HINTS FOR TAKING THE FCAT MATHEMATICS SSS TEST

1. Read the problem very carefully. Then decide whether or not you need the calculator to help you solve the problem.
2. When starting a new problem, always clear your calculator by pressing the clear key.
3. If you see an **E** in the display, clear the error before you begin.
4. If you see an **M** in the display, clear the memory and the calculator before you begin.
5. If the number in the display is not one of the answer choices, check your work. Remember that when computing with certain types of fractions, you may have to round the number in the display.
6. Remember, your calculator will NOT automatically perform the algebraic order of operations.
7. Calculators might display an incorrect answer if you press the keys too quickly. When working with calculators, use careful and deliberate keystrokes, and always remember to check your answer to make sure that it is reasonable.
8. The negative sign may appear either to the left or to the right of the number.
9. Always check your answer to make sure that you have completed all of the necessary steps.

Use the space in the Test Book to do your work. If you change your answer, be sure to erase completely.

1 Tonja and Edward are participating in a jog-a-thon to raise money for charity. Tonja will raise $20, plus $2 for each lap she jogs. Edward will raise $30, plus $1.50 for each lap he jogs. The total amount of money each will raise can be calculated using the following expressions where n represents the number of laps run:

Tonja: $20 + 2n$

Edward: $30 + 1.50n$

After how many laps will Tonja and Edward have raised the same amount of money?

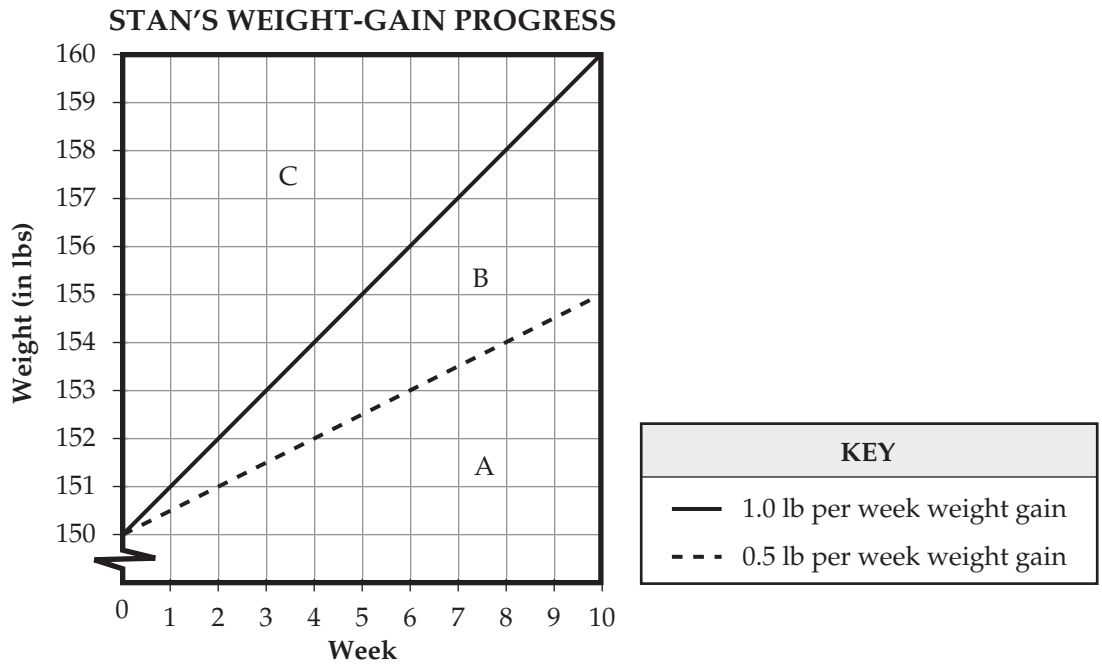
A. 3

B. 6.5

C. 14.5

D. 20

2 Stan weighs 150 pounds (lbs) and would like to gain between 0.5 and 1.0 pound (lb) per week over the next 10 weeks. He plans to record his progress on the graph below. On the graph, the dotted line represents a weight-gain rate of exactly 0.5 pound per week, and the solid line represents a weight-gain rate of exactly 1.0 pound per week.



If Stan gains between 0.5 and 1.0 pound per week, which region on the graph will contain all possible points that could represent Stan's weight-gain progress?

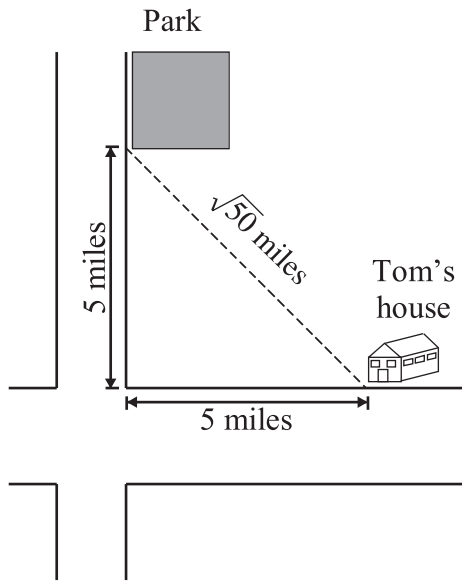
F. region A

G. region B

H. region C

I. regions A and B combined

3 Tom used the Pythagorean theorem to calculate the direct distance from his house to the park. He found the distance to be $\sqrt{50}$ miles.

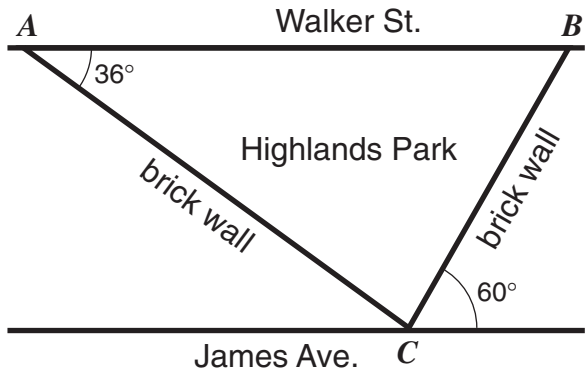


not to scale

Which of the following is equivalent to $\sqrt{50}$?

A. $5\sqrt{2}$
B. 10
C. 25
D. $25\sqrt{2}$

4 Highlands Park is located between two parallel streets: Walker Street and James Avenue. The park faces Walker Street and is bordered by two brick walls that intersect James Avenue at point *C*, as shown below.



What is the measure of $\angle ACB$, the angle formed by the park's two brick walls?

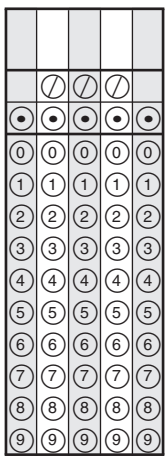
F. 96°

G. 84°

H. 60°

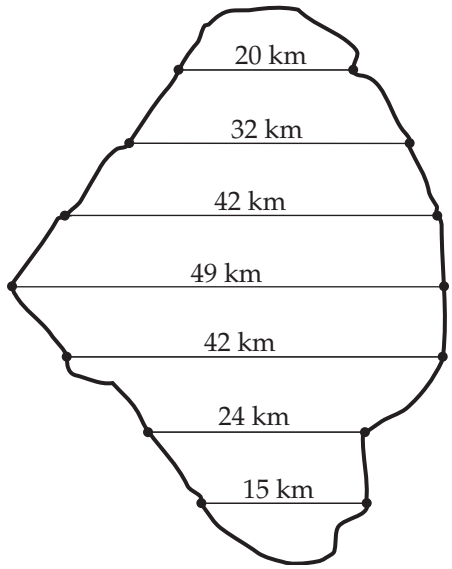
I. 36°

5 In 1995, there was a total of 7.2 million acres of pine forests in Florida. All of the forests were either natural or planted by people. Given that 4.4 million acres of these pine forests were planted by people, how many millions of acres of these pine forests were natural?

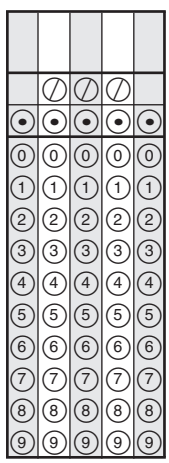


6 To determine the mean width of Lake Okeechobee, 7 line segments were drawn at even intervals across the map below.

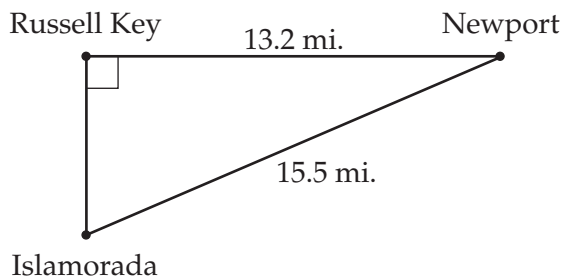
LAKE OKEECHOBEE



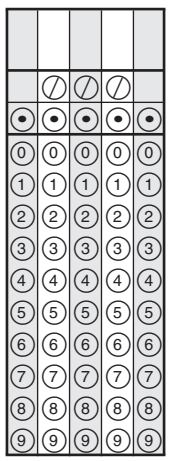
Using the lengths of these 7 line segments, what is the mean width, in kilometers, of Lake Okeechobee?



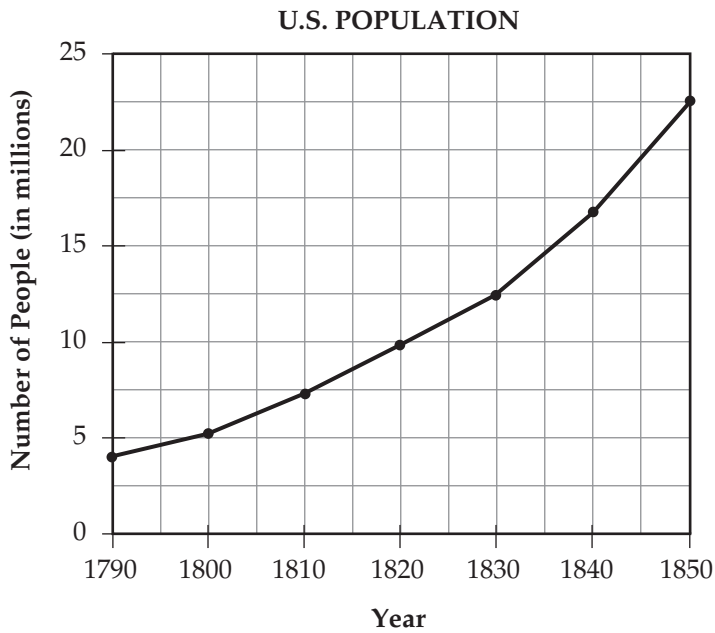
7 Abdul plans schedules for several biologists who are researching the manatee. One biologist must travel from Newport to Russell Key. Later the biologist has a meeting in Islamorada. Abdul must use the map below to find the distance from Russell Key to Islamorada to determine how much time the biologist can spend on Russell Key.



What is the distance in miles (mi.) from Russell Key to Islamorada?



8 In 1790, the United States had a population of approximately 4,000,000 people, as shown on the graph below.



According to the graph, in what year had the population grown to approximately twice that number?

A. 1797

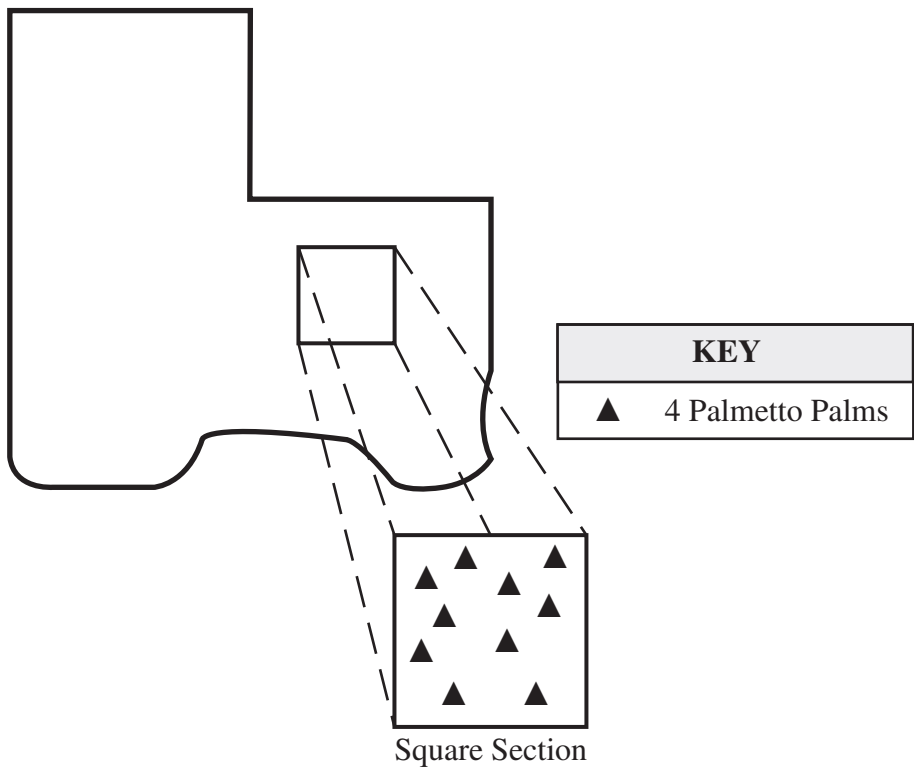
B. 1808

C. 1813

D. 1822

9 An environmental group needed to determine the number of palmetto palms in a nature preserve. The group used a map of the preserve and counted the number of palmetto palms within a square section.

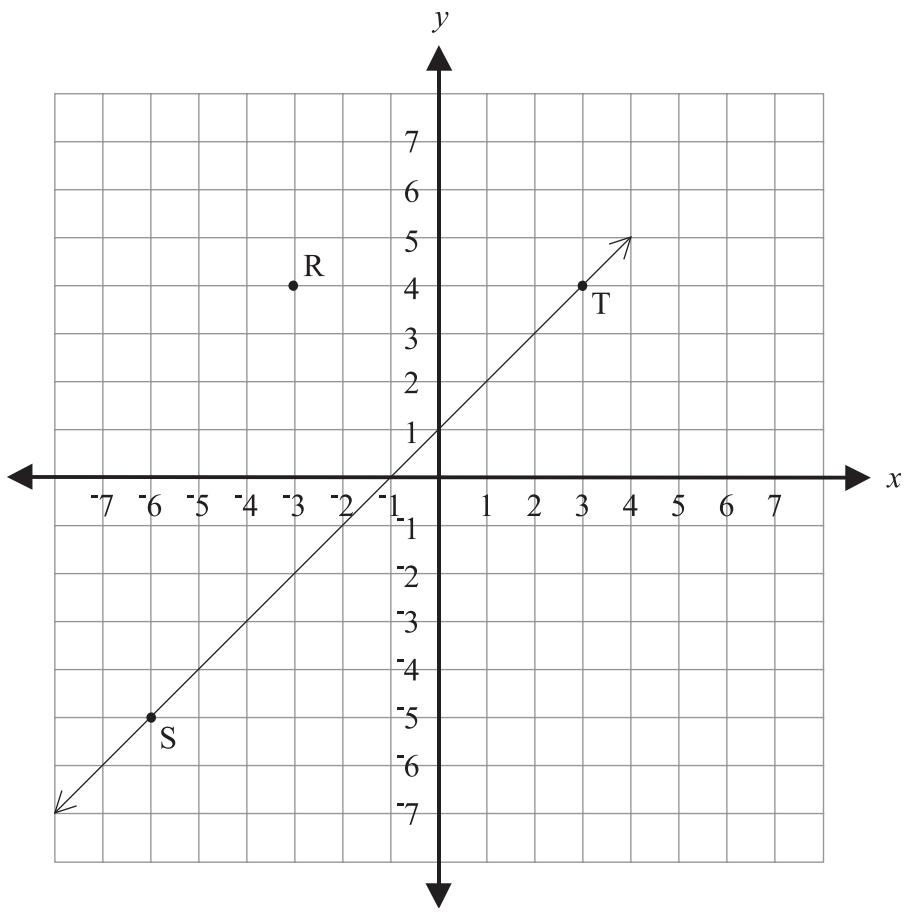
NATURE PRESERVE



Assuming that the number of palmetto palms within the square section is representative of the entire nature preserve, which is closest to the number of palmetto palms within the entire nature preserve?

F. 40
G. 150
H. 650
I. 1000

10 Robert is making a landscape drawing for his backyard on the coordinate grid below. He is drawing a path. One side of the path represented by $\overleftrightarrow{ST}$ is already drawn. He wants to draw the other side of the path through point R and point Q so that $\overleftrightarrow{QR}$ will be parallel to $\overleftrightarrow{ST}$.



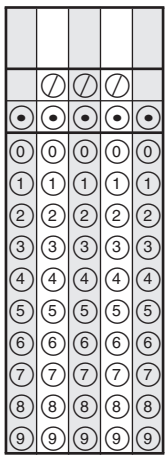
Which of the following coordinates for point Q would make $\overleftrightarrow{QR}$ parallel to $\overleftrightarrow{ST}$?

A. (-6, 2)
B. (-7, 0)
C. (6, 2)
D. (7, 0)

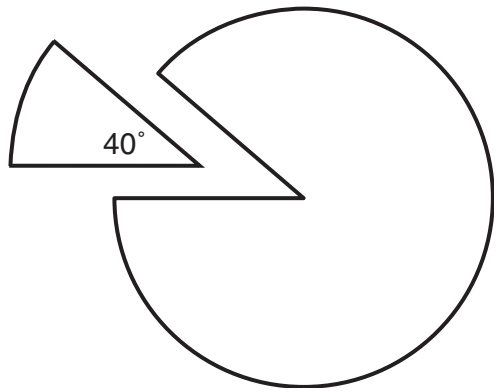
11 An artist sells earrings from a booth at a fair. Rent for the booth is \$250. The artist makes \$6 from each pair of earrings sold. The profit in dollars, P, can be found using the following equation, where n is the number of pairs of earrings sold.

$$P = 6n - 250$$

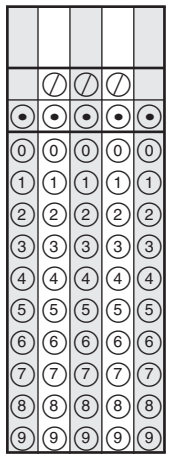
How many pairs of earrings must the artist sell to earn a profit of \$500?



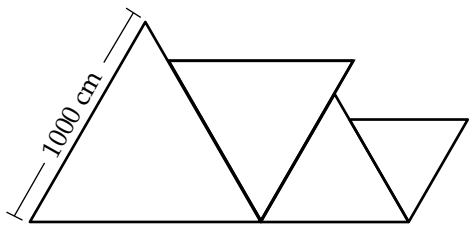
12 A jeweler made earrings by cutting wedges from silver disks. Each wedge cut from a disk made a 40° angle at the center of the disk.



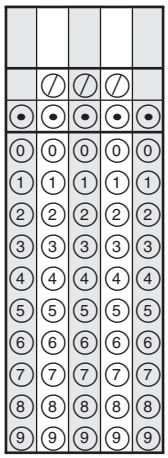
If the weight of each uncut disk was 2.7 grams, how many grams did each wedge weigh?



13 Byron is painting a mural showing a series of equilateral triangles. The first triangle will have sides 1000 centimeters (cm) long. The sides of each subsequent triangle will be 20% smaller than the triangle before. Byron's sketch of the mural is shown below.



What will be the length, in centimeters, of one side of the fourth triangle?

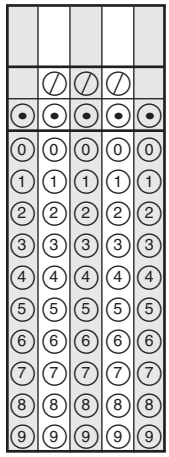


14 Julio's music appreciation class is studying examples of classical music used in films. Each student is randomly assigned to report on 2 of the selections listed in the table.

CLASSICAL MUSIC IN FILMS

Film Title	Composer	Selection
A Clockwork Orange	Beethoven	Symphony No. 9 "Choral"
A Room with a View	Puccini	Gianni Schicchi
Amadeus	Mozart	Piano Concerto No. 20
Apocalypse Now	Wagner	Ride of the Valkyries
Au Revoir les Enfants	Schubert	Moment Musical No. 2

From the music selections above, how many combinations of 2 are possible?



15 In music a certain "A note" has a frequency of 440 hertz (vibrations per second). This is called the first harmonic. The second harmonic of that "A note" is 880 hertz, and the third harmonic is 1,320 hertz. According to this pattern, what is the frequency of the fifth harmonic?

F. 880 hertz
G. 1,760 hertz
H. 2,200 hertz
I. 2,640 hertz

16 In a survey, people were asked to choose a favorite art activity. The information in the table below shows some of the results of the survey.

FAVORITE ART ACTIVITIES OF SOME PEOPLE
(in millions)

Age	Pottery	Needle-work	Photography	Painting	Creative Writing
18–24	2.2	4.3	2.7	4.6	3.4
25–34	4.2	10.2	6.2	4.2	3.0
35–44	4.0	10.0	5.2	4.0	3.2
45–54	2.5	7.2	3.6	2.2	1.9
Total	12.9	31.7	17.7	15.0	11.5

According to the information in the table, which of the following statements is true?

A. More people aged 25 to 34 chose needlework than the total number of people who chose creative writing.
B. Two times as many people aged 45 to 54 chose photography as chose needlework.
C. Less than sixteen percent of the people represented in the table chose pottery.
D. Fifteen percent of the people represented in the table chose painting.

17 The number of shoppers at a Fort Myers flea market ranges from an average of 55,000 per weekend during the tourist season to an average of 18,000 on a summer weekend.

What is the percent of decrease, to the nearest whole number, in the number of shoppers at the flea market from the tourist season to a summer weekend?

F. 18%

G. 33%

H. 55%

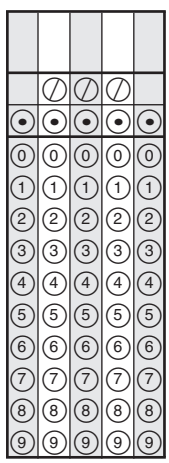
I. 67%

18 A local bakery is baking cakes for a restaurant owner. The bakery sells one kind of cake for $16 and another kind of cake for $12. The restaurant owner will pay $1,000 all together for 70 cakes. This information can be represented by the following equations, where x represents the number of $16 cakes and y represents the number of $12 cakes.

$$16x + 12y = 1{,}000$$

$$x + y = 70$$

How many $16 cakes should the bakery bake for the restaurant owner?

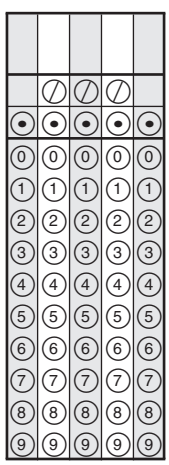


19 Brian works for a caterer who prepares and serves barbecued beef. The amount of beef is prepared according to the following table.

BARBECUED BEEF PLANNING CHART

Number of Guests	Pounds of Beef
10	8
20	16
30	24
40	32

Based on the pattern in the table, how many pounds of beef should be prepared for 225 guests?

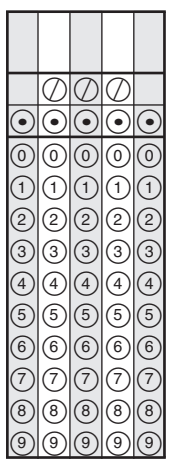


20 The manager of a computer help center made a table to track customer calls. The table below shows the number of telephone calls and the duration of the calls in minutes, t.

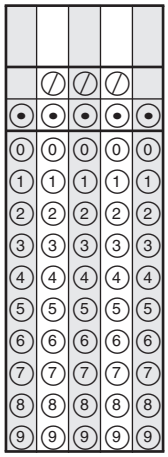
DURATION OF CUSTOMER CALLS

Call Duration (t minutes)	Number of Calls
$t < 4$	120
$4 \leq t < 8$	225
$8 \leq t < 12$	210
$12 \leq t < 16$	150
$16 \leq t < 20$	30
$20 \leq t < 24$	15

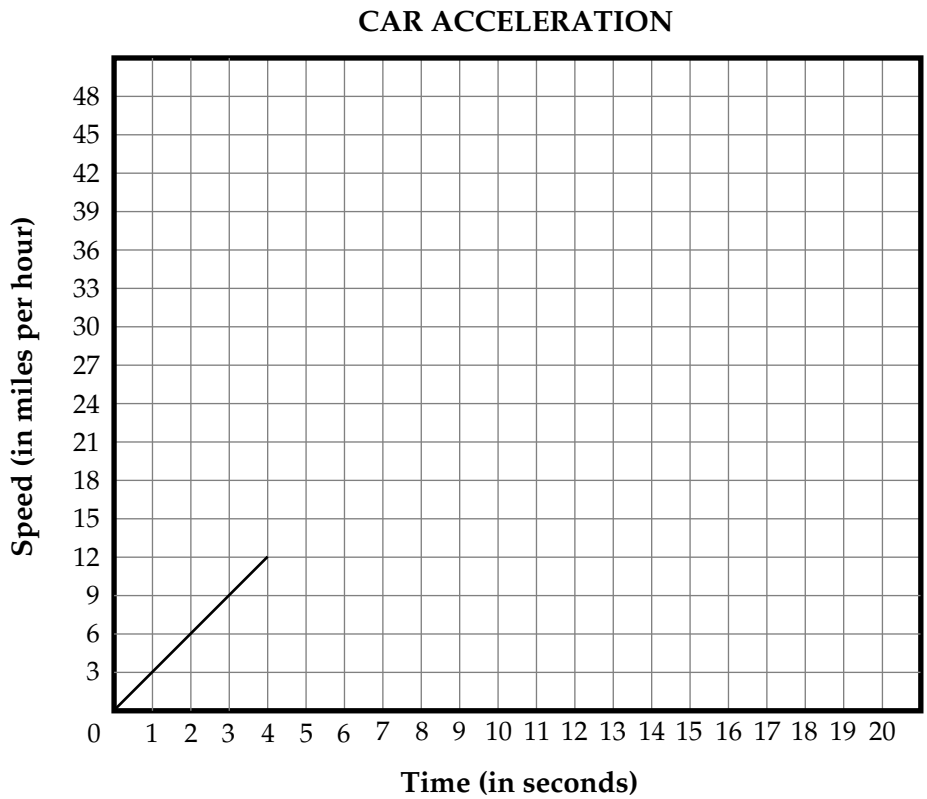
What **percent** of the telephone calls received during this one-day period lasted less than 16 minutes?



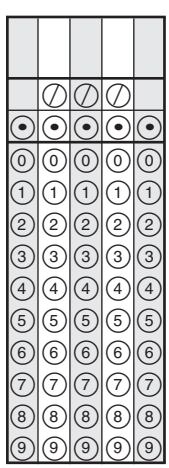
21 A toy company manufactured 12,000 model racecars. Alisha, who works in the quality control group, chose 250 of the model racecars at random and had them checked for defects. Of the 250 racecars, 212 were found to have NO defects. Assuming this ratio held true for all 12,000 model racecars, how many of the racecars had defects?



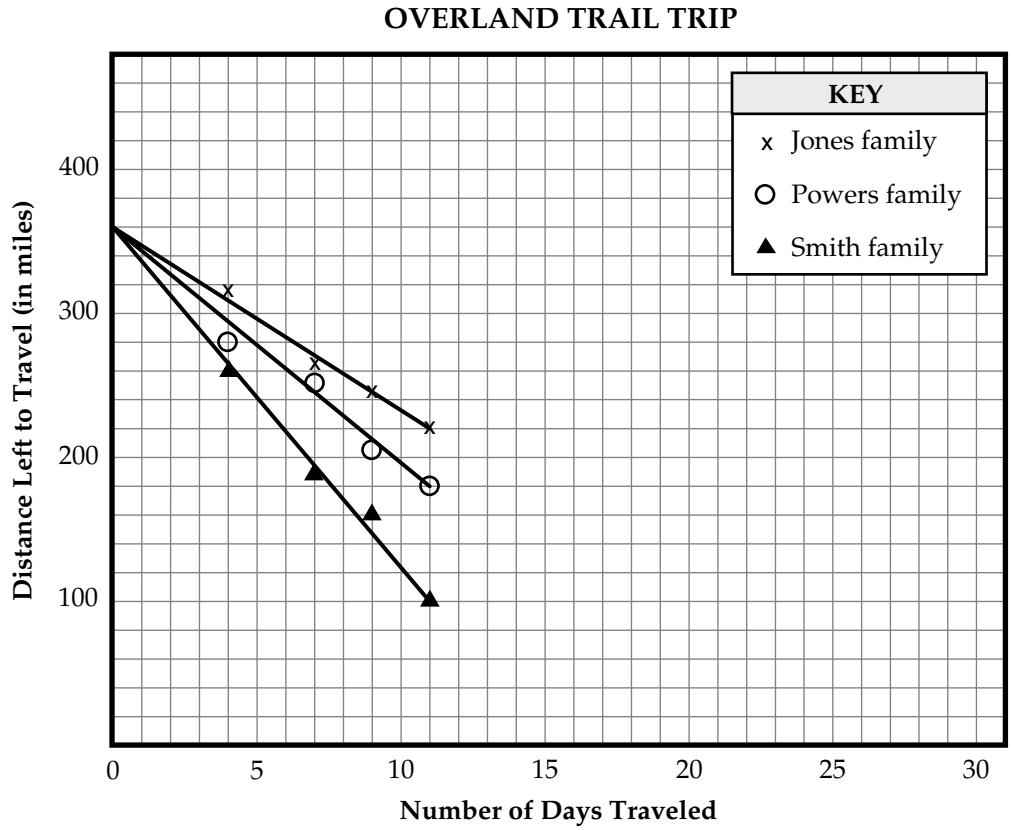
22 An automobile testing organization is verifying the acceleration characteristics of a car. The car will accelerate at a rate of 3 miles per hour per second from 0 miles per hour (mph) to 45 mph. The graph below shows the beginning of the ideal acceleration plot.



If the rate of acceleration remains constant, how many seconds will it take the car to reach its final test speed?



23 Three families are traveling west on the Overland Trail. They are taking the same path the pioneer families did in the 1850s. The families started together 360 miles from their final destination. The graph below shows the line of best fit for the distance each family has left to travel at the end of the first 11 days.



If each family continues to travel at the same rate, approximately what total number of miles will the Jones family have left to travel at the end of the fifteenth day?

A. 115 miles

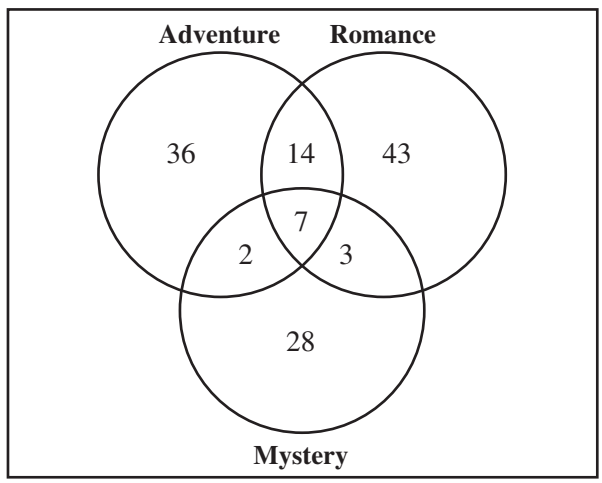
B. 140 miles

C. 150 miles

D. 170 miles

24 The Venn diagram below shows the types of novels the literature club members read during their summer break.

LITERATURE CLUB SUMMER READING



Which of the following is NOT supported by the information in the Venn diagram?

F. 21 members read both an adventure novel and a romance novel

G. 64 members read only an adventure novel or a mystery novel

H. 26 members read all three types of novels

I. 67 members read a romance novel

25 Mrs. Hana gave a 50-point quiz to her first period geography class. The scores for the class are shown in the stem-and-leaf plot shown below.

Stem	Leaf
1	9
2	7 9
3	5 5 5 6 9
4	7 7 8 9
5	0

KEY
4|7 = 47

What was the **median** score for the class?

A. 6
B. 35
C. 36
D. 38

26 Matt's mathematics class is playing "Guess My Rule." The teacher writes this table of values on the chalkboard, and the class finds an equation that fits the values in the table. Which of these equations describes the relationship between the values in the table?

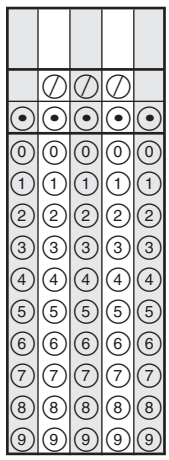
Table of Values

x	y
-3	-11
0	-2
2	4
5	13

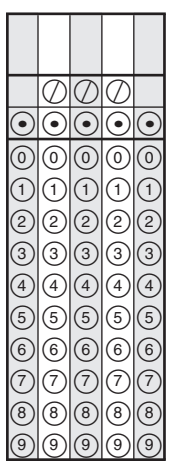
F. $y = 2x - 2$
G. $y = -2x - 2$
H. $y = -3x - 2$
I. $y = 3x - 2$

27 Alyssa determined that the approximate error in the area of the square she was measuring was given by the expression $2|^{-}0.1|$.

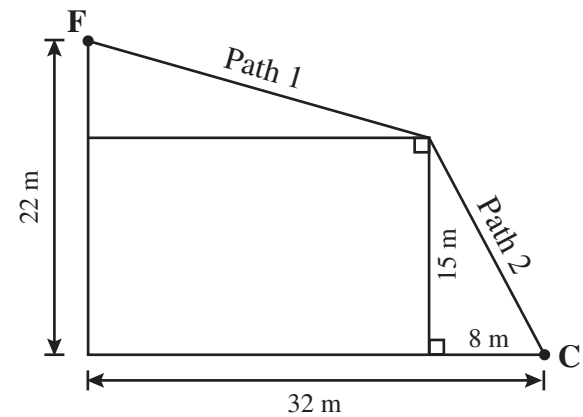
What is the decimal form of $2|^{-}0.1|$?



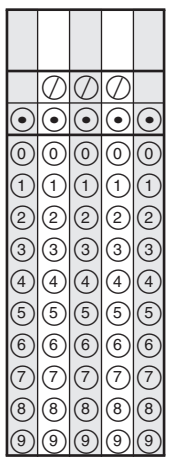
28 The volume of a cube with an edge length of u units is u^3 cubic units. If the length of each edge is doubled, how many times larger is the volume of the new cube than the volume of the original cube?



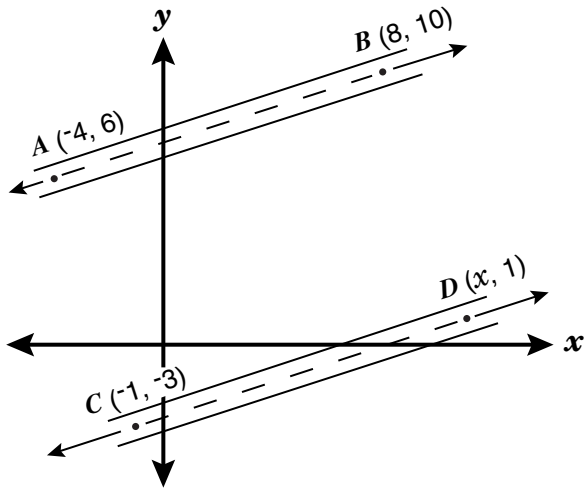
29 Fernando followed two diagonal paths, Paths 1 and 2, to get from his house, *F*, to a neighborhood corner store, *C*, as shown below.



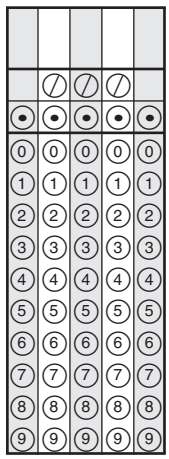
What is the total distance of the two paths, in meters (m), from *F* to *C*?



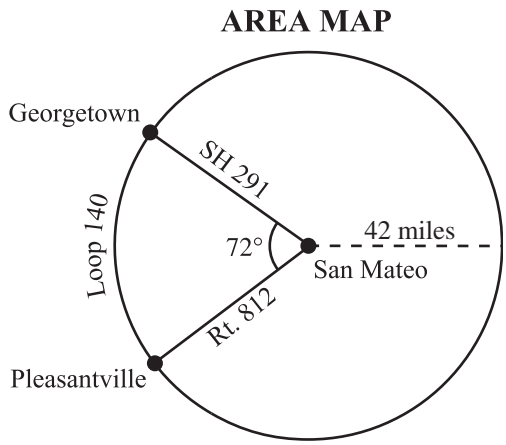
30 An airport designer drew a plan for two runways on a rectangular coordinate system. Line *AB* represents the centerline of the first runway and line *CD* represents the centerline of the second runway.



If the designer chose a *y*-coordinate of 1 for point *D*, what must be the *x*-coordinate for the two runways to be parallel?



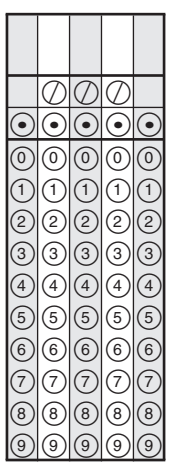
31 Sandra wants to use the map shown below to determine the driving distance from her home in Georgetown to her workplace in Pleasantville using Loop 140.



She has the following information to make her calculations.

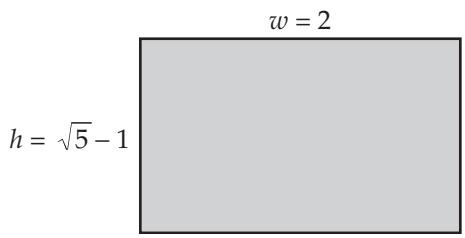
- Loop 140 is circular with a radius of 42 miles and the center at San Mateo.
- SH 291 and Rt. 812 intersect at San Mateo.

According to the map, how many miles must Sandra drive going counterclockwise from Georgetown to Pleasantville on Loop 140?



32 The "Golden Rectangle" of the ancient Greeks was considered to have the most pleasing proportion of any rectangle. The ratio of width *(w)* to height *(h)* of the rectangle is expressed in the following proportion and is shown in the drawing below.

$$\frac{w}{h} = \frac{2}{\sqrt{5} - 1}$$



Jason is planning to paint a rectangular mural using the proportions of the "Golden Rectangle." If the mural is 15 meters wide, how high should it be?

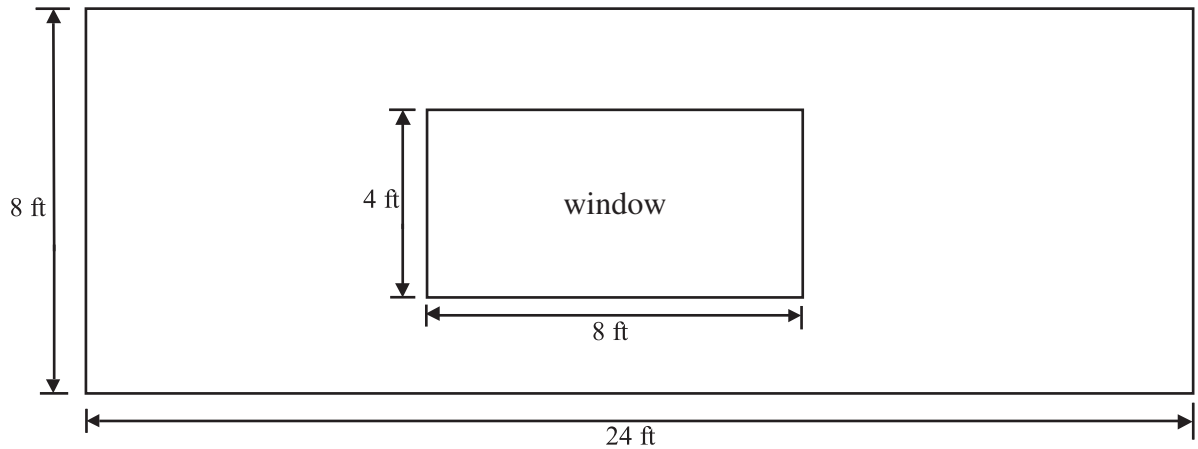
A. 1.6 meters

B. 9.3 meters

C. 16.5 meters

D. 24.2 meters

33 Mrs. Bickhart decided to apply wallpaper on one wall of her living room. A diagram of the rectangular wall with its window is shown below.



A roll of wallpaper covers approximately 30 square feet. What is the minimum number of rolls she will have to buy in order to cover the entire wall excluding the window?

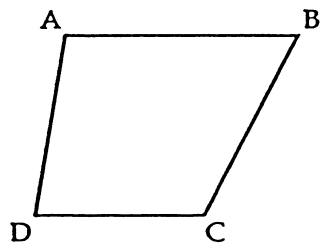
F. 2 rolls

G. 5 rolls

H. 6 rolls

I. 7 rolls

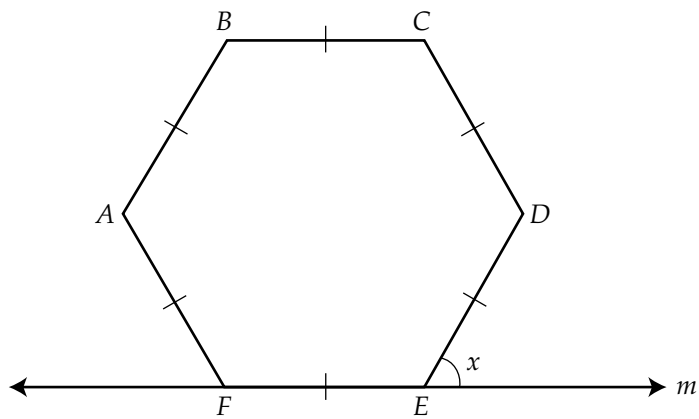
34 In the figure below, $\overline{AB}$ is parallel to $\overline{DC}$.



Which of the following statements about the figure **must** be true?

A. $\angle DAB + \angle ABC = 180°$
B. $\angle DAB + \angle CDA = 180°$
C. $\overline{AB} \cong \overline{DC}$
D. $\overline{AD} \cong \overline{BC}$

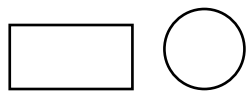
35 Figure *ABCDEF* below is a regular hexagon with line *m* passing through side *FE*.



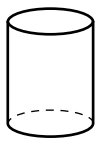
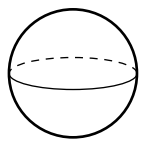
What is the measure of $\angle x$?

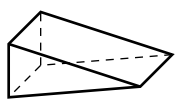
F. 75°
G. 60°
H. 51°
I. 45°

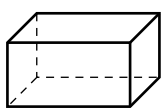
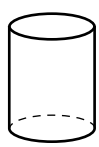
36 When a plane intersects a solid three-dimensional figure, the plane of intersection is called a cross section. Two cross sections are shown below.

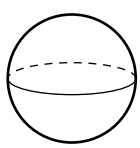


The cross sections above could NOT have come from which of these pairs of solid figures?

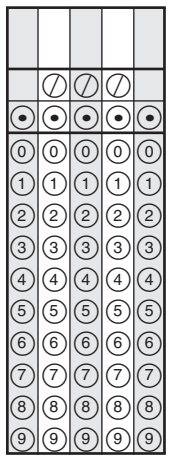
A.  and 

B.  and 

C.  and 

D.  and 

37 When a patient needs to receive medicine intravenously (directly into the blood stream), the doctor prescribes the medicine in milliliters per hour (mL/hr). A nurse then converts the mL/hr into a rate of drops per minute, using 1 mL = 15 drops of medicine. What is the total number of **hours** that 1000 mL of medicine will last if the patient receives the medicine at a rate of 40 drops per minute?

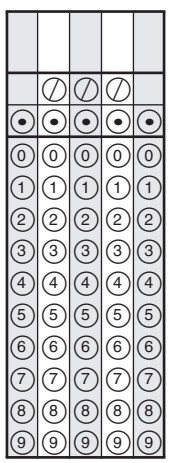


38 The chart below shows the density of some common substances. *Density* is the mass of a substance per unit of volume.

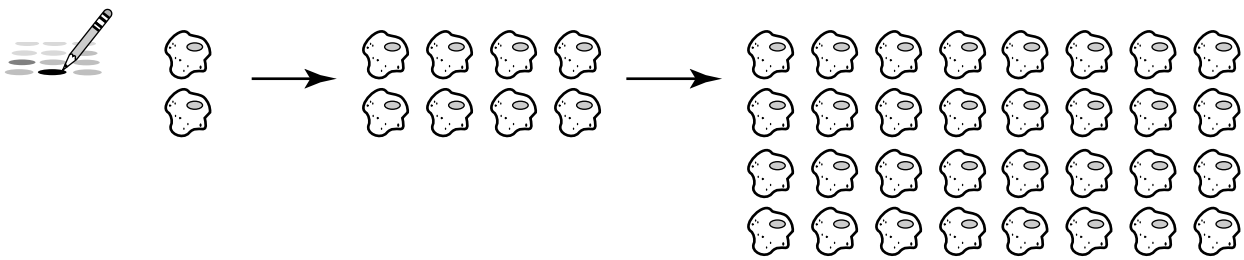
DENSITY OF COMMON SUBSTANCES

Substance	Density (in grams per cubic centimeter)
Water	1.0
Sugar	1.6
Table salt	2.2
Quartz	2.6
Aluminum	2.7

What is the density of table salt, in **milligrams** per cubic centimeter?

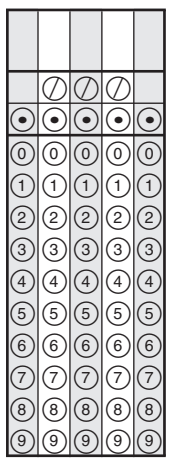


39 Some cells reproduce every 40 minutes at the rate shown in the picture below.

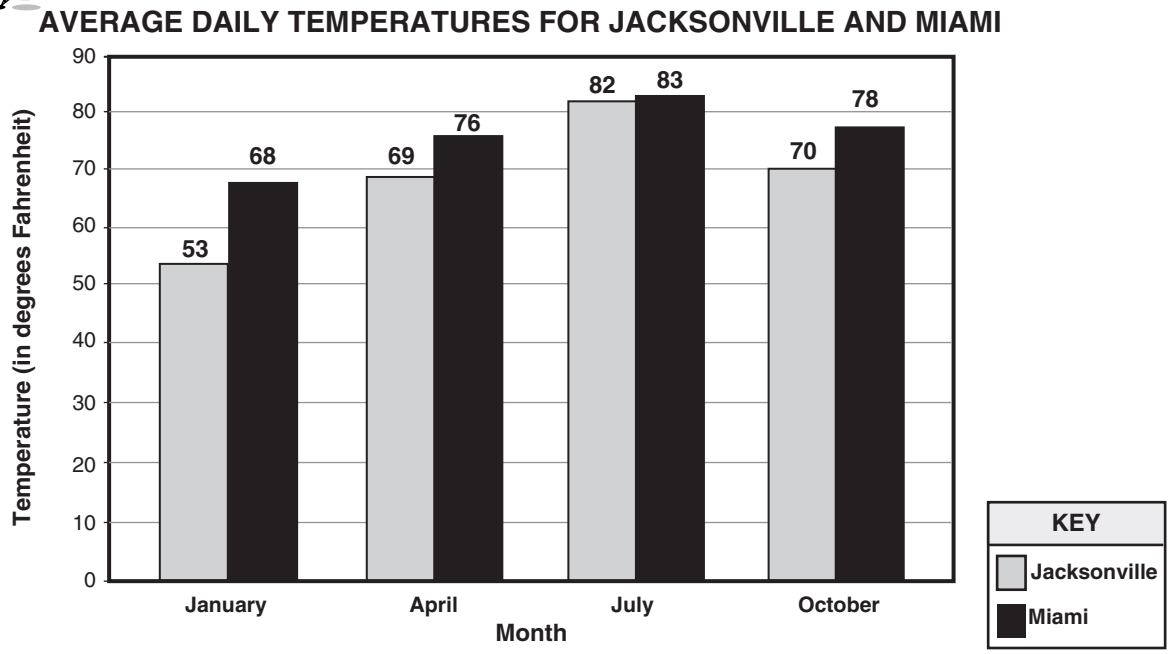


2 cells at 0 minutes **8 cells at 40 minutes** **32 cells at 80 minutes**

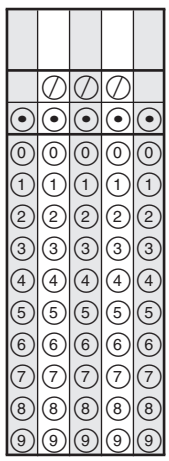
How many cells would there be at 160 minutes?



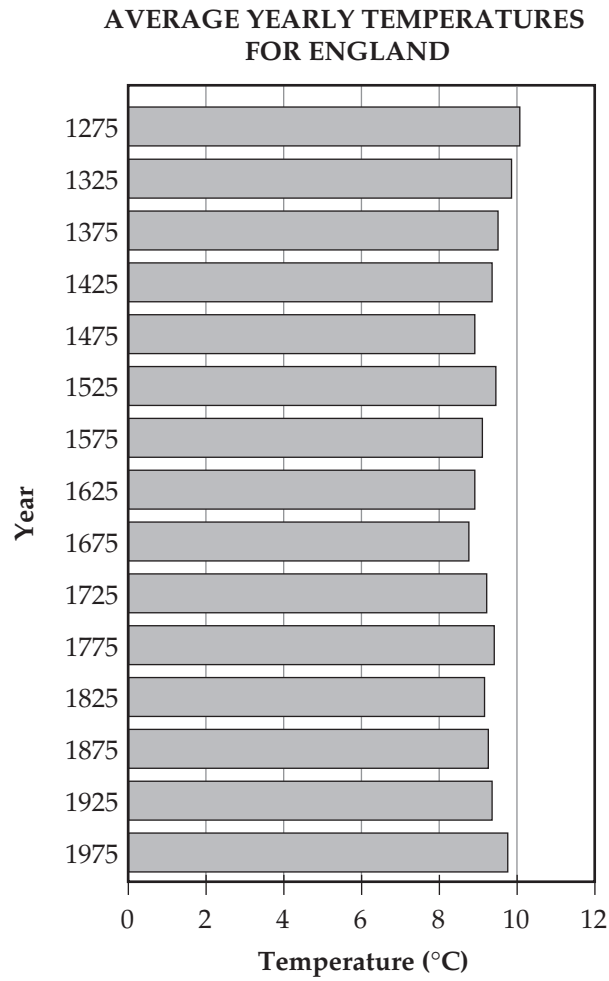
40 The bar graph below compares the average daily temperatures of Jacksonville and Miami for four different months.



What is the difference, in degrees Fahrenheit, between the highest and lowest average temperatures for Jacksonville according to the bar graph?



41 The bar graph below shows the average yearly temperatures in degrees Celsius for England from the year 1275 to the year 1975, in increments of 50 years.



Based on the information in the graph, which of the following statements is a valid conclusion?

F. Summer temperatures in England decreased from 1275 to 1375.

G. England's average yearly temperature was lower in 1700 than in 1725.

H. It is likely that temperatures in England will not exceed 9°C in 2025.

I. It is likely that England's average yearly temperature will not drop below 8°C in 2025.

42 The table below shows the boiling points in degrees Celsius for some different elements.

BOILING POINTS OF SOME ELEMENTS

Element	Boiling Point (in °C)
Chlorine	-34.6
Helium	-269.0
Hydrogen	-252.9
Nitrogen	-195.8
Oxygen	-183.0

Which of the following elements have boiling points that are lower than -190°C?

A. chlorine and oxygen
B. oxygen and nitrogen
C. chlorine, helium, and hydrogen
D. helium, hydrogen, and nitrogen

43 In this function table, what is the value of y when $x = 3$?

F. 2
G. 4
H. 5
I. 7

x	y
0	1
1	0
2	1
3	____
4	9
5	16

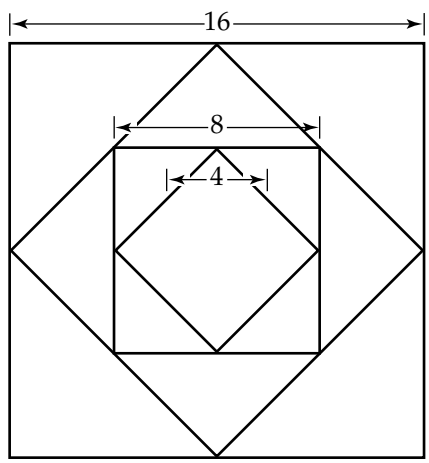
44 A formula for computing a value r is

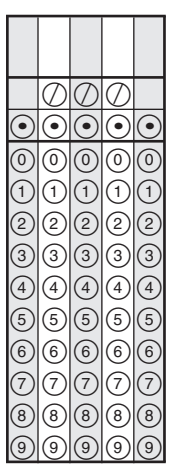
$$r = \frac{mx + my}{wz}, \text{ where } m, x, y, w, \text{ and } z \text{ are positive integers.}$$

An increase in which variable would result in a corresponding decrease in r?

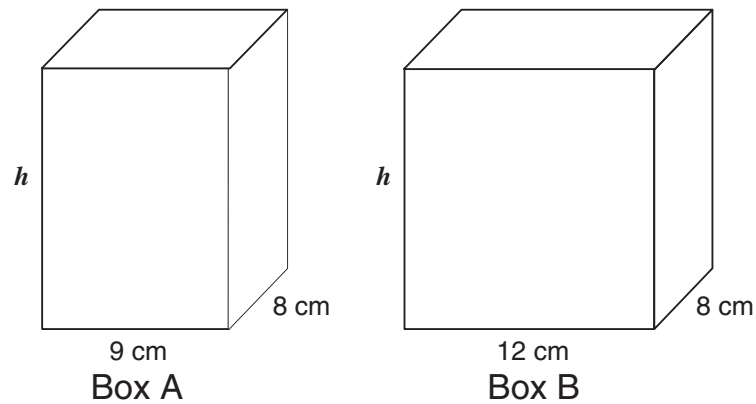
A. m
B. x
C. y
D. z

45 An artist created this pattern by inscribing squares. The midpoints of each square have been connected to form a smaller square. The side length of the first square is 16 units, the side length of the third square is 8 units, and the side length of the fifth square is 4 units. If this pattern is continued, what will be the side length in units of the eleventh square?

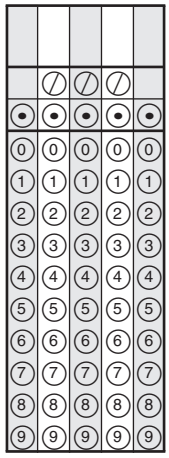




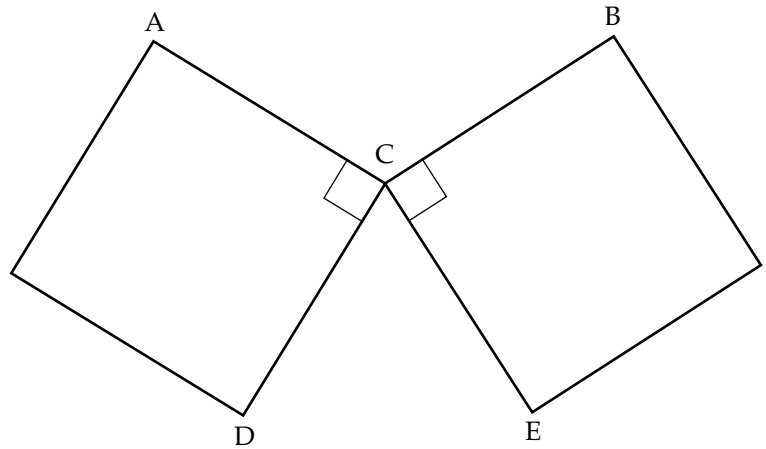
46 Two rectangular boxes have the same height and the same length, but different widths, as shown in the figure below.



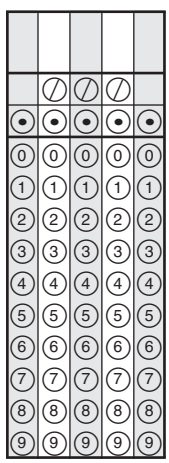
The difference in the volumes of Box *B* and Box *A* is 360 cubic centimeters. What is *h*, the height of each box in **centimeters (cm)**?



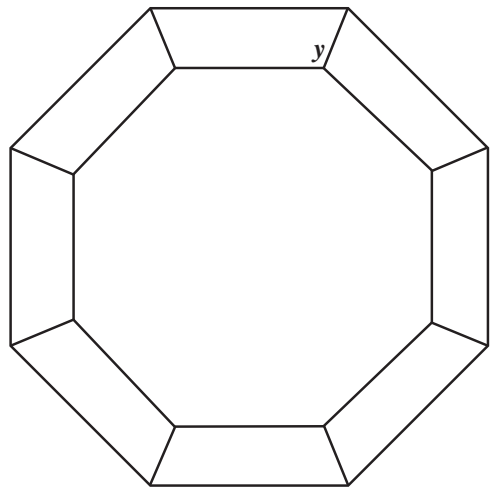
47 The two squares below intersect at point C.



What is the sum of the measures of ∠ACB and ∠DCE, in degrees?

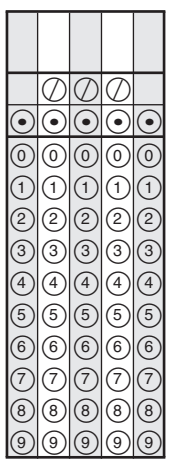


48 Mr. Soto drew a design for a quilting pattern. The design is made up of 8 congruent isosceles trapezoids as shown below.

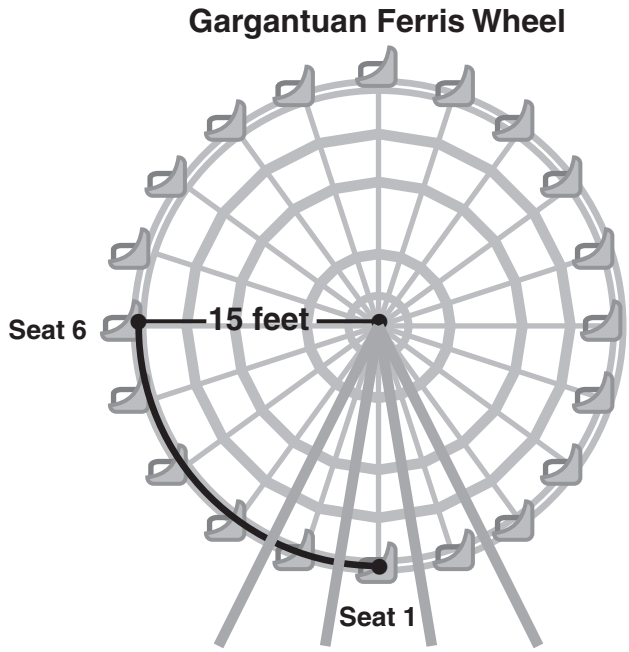


Mr. Soto's Design

What is the measure, in degrees, of angle y?



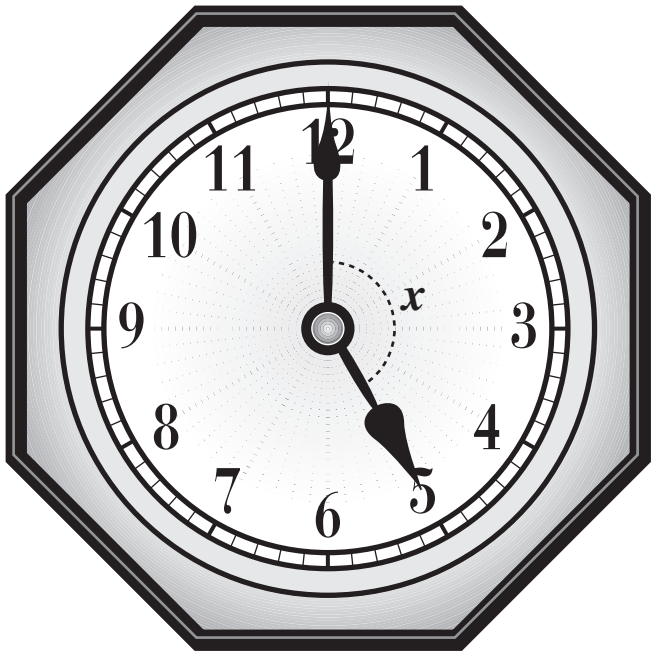
49 Julie works at the amusement park with the maintenance crew. She needs to replace a string of burned-out lights along the arc shown between seat 1 and seat 6. The arc makes up $\frac{1}{4}$ of the Gargantuan Ferris Wheel.



The 20 seats of the Ferris wheel are equally spaced, and the supports from the center of the Ferris wheel to each seat are 15 feet in length. How long, to the nearest foot, does the string of replacement lights need to be?

F. 24 feet
G. 30 feet
H. 47 feet
I. 90 feet

50 The clock shown has hands positioned at 5 o'clock.



What is the degree measure of angle x?

A. 36°
B. 72°
C. 150°
D. 210°

51 Fred has an account with a photocopy shop. He is charged \$0.05 per copy for one-sided copies and \$0.08 per copy for two-sided copies. The table below shows the number of copies the shop made for Fred during a three-day period.

COPIES MADE DURING A THREE-DAY PERIOD

Day	One-Sided	Two-Sided
Monday	215	145
Tuesday	175	126
Wednesday	203	125

Fred used the following expression to calculate the amount he was charged for copies during the three-day period.

$(215 \times 0.05 + 145 \times 0.08) + (175 \times 0.05 + 126 \times 0.08) + (203 \times 0.05 + 125 \times 0.08)$

Which of the following expressions is equivalent to the expression above?

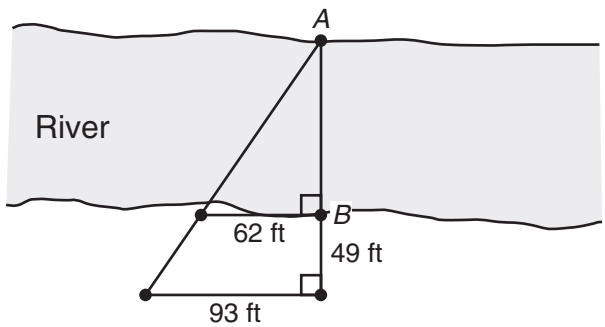
F. $(215)(145 + 0.05)(0.08) + (175)(126 + 0.05)(0.08) + (203)(125 + 0.05)(0.08)$

G. $(215 + 145)(0.05)(0.08) + (175 + 126)(0.05)(0.08) + (203 + 125)(0.05)(0.08)$

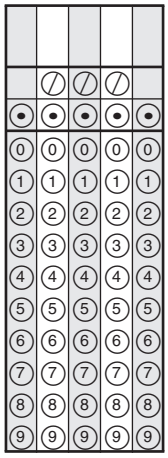
H. $(215 + 175 + 203)(0.05) + (145 + 126 + 125)(0.08)$

I. $(215 + 145 + 175 + 126 + 203 + 125)(0.13)$

52 An engineer wanted to approximate the width of a river. She placed markers at point *A* and point *B* to represent the average width of the river. She also placed 3 other markers along the riverbank and measured the distances shown in the diagram below.



Based on this diagram, what was the width of the river, in feet (ft), from point *A* to point *B*?



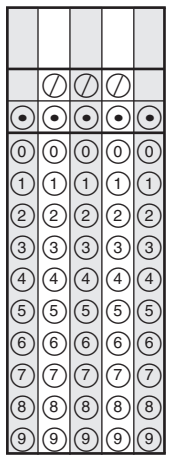
53 Keith is in charge of receiving shipments at a warehouse. He receives 3 types of crates in each shipment. Keith uses the following equation to determine u, the number of units received each day.

$$u = 20x + 15y + 30z$$

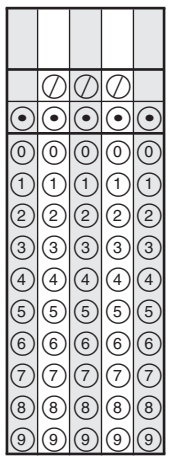
In the equation above, the variables represent the following:

x = the number of crates that contain 20 units,
y = the number of crates that contain 15 units, and
z = the number of crates that contain 30 units.

If Keith received a shipment of 20 type-x crates, 5 type-y crates, and 6 type-z crates in 1 day, how many total units did he receive that day?



54 Max works at a factory that manufactures fiberglass tanks. He needs to make a right circular cylindrical fiberglass tank that has a diameter of 6 meters and a height of 8 meters. What will be the volume, in cubic meters, of this cylinder?



55 Last year 4 local bands played at Beach High School's spring break concert. Each band was paid $100, and the remaining $2725 in ticket sales went to the school's recreation fund. If 6 bands will have to be paid $100 each this year and tickets are still $5 each, how many tickets will have to be sold this year in order to raise the same amount of money as last year for the school's recreation fund?

A. 425
B. 545
C. 625
D. 665

56 Tonya is an office manager for a law firm. She spent $166.25 on office supplies for three lawyers, her assistant Bill, and herself. Office policy requires that the cost of supplies be divided equally among all five employees. Both Tonya's and Bill's supplies are charged to Tonya's office account. How much money is charged to her account?

F. $33.25
G. $41.60
H. $66.50
I. $83.20

57 Mr. Martin is holding a trivia contest. The 13 students who are participating randomly draw cards that are numbered with consecutive integers from 1 to 13.

- The student who draws number 1 will be the host.
- The students who draw the other odd numbers will be on the Red Team.
- The students who draw the even numbers will be on the Blue Team.

One student has already drawn a card and is on the Blue Team. If Carlos is the next student to draw a card, what is the probability that he will be on the Red Team?

A. $\frac{1}{13}$

B. $\frac{1}{12}$

C. $\frac{6}{13}$

D. $\frac{6}{12}$

58 There is a proportional relationship between the size of a projected image on a screen and the distance of the screen from the projector.

An image that is projected onto a screen 10 feet away is a rectangle with dimensions of 2 feet by 3 feet. If the screen is moved to a distance of 15 feet from the projector, what will be the dimensions of the larger image projected onto the screen?

F. 3 feet by 4.5 feet

G. 4 feet by 6 feet

H. 4.5 feet by 6.75 feet

I. 7 feet by 8 feet

MATHEMATICS

SUNSHINE STATE STANDARDS

TEST BOOK

Released: August 2006

Last used: Summer 2006

GRADE 10

FLORIDA DEPARTMENT OF EDUCATION
www.fldoe.org

Assessment and School Performance
Florida Department of Education
Tallahassee, Florida