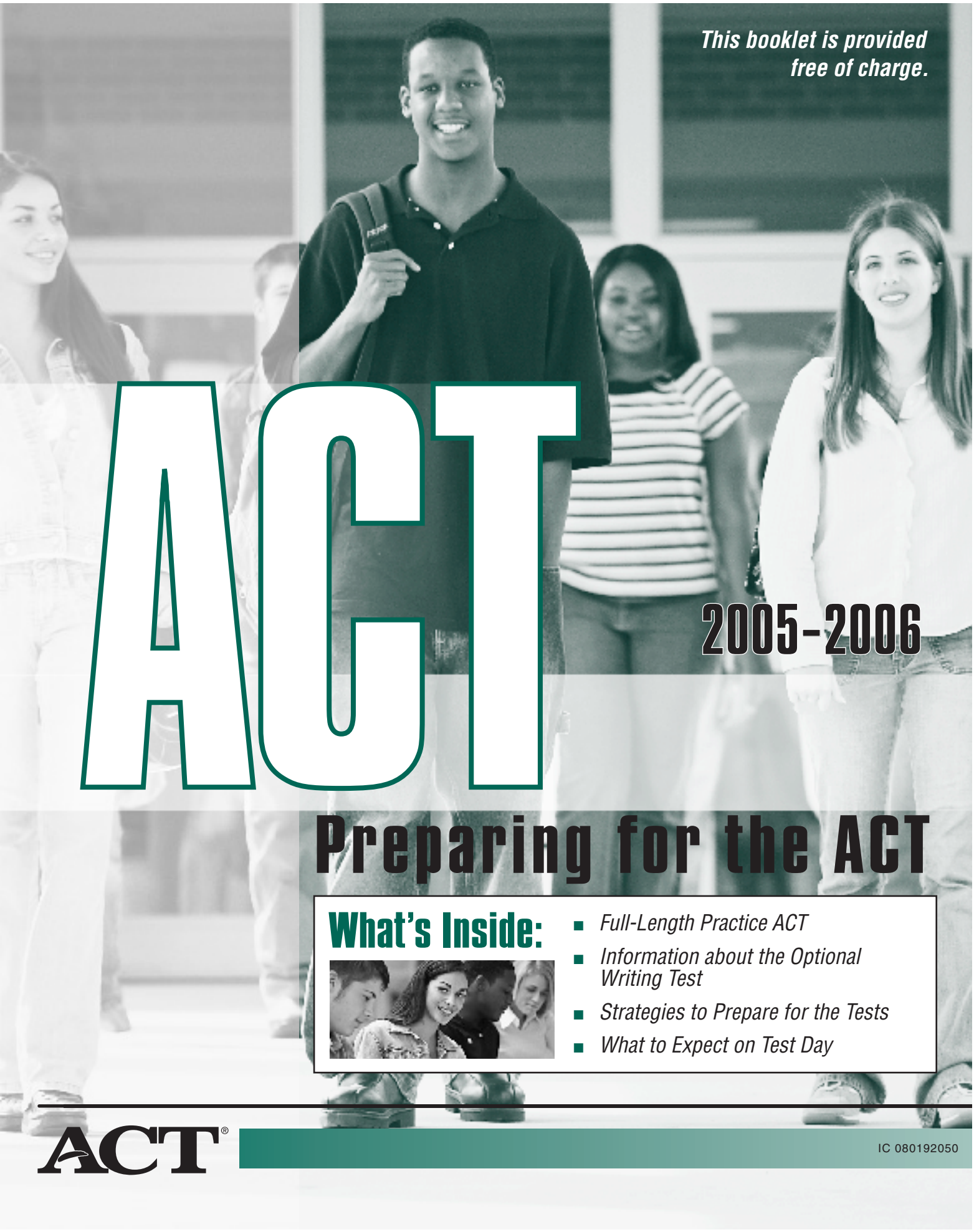

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ACT

2005–2006

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MATHEMATICS TEST

60 Minutes—60 Questions

DIRECTIONS: Solve each problem, choose the correct answer, and then fill in the corresponding oval on your answer document.

Do not linger over problems that take too much time. Solve as many as you can; then return to the others in the time you have left for this test.

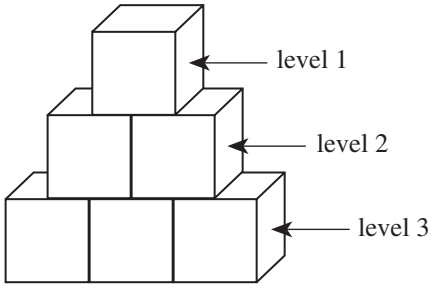
You are permitted to use a calculator on this test. You may use your calculator for any problems you choose, but some of the problems may best be done without using a calculator.

Note: Unless otherwise stated, all of the following should be assumed.

1. Illustrative figures are NOT necessarily drawn to scale.
2. Geometric figures lie in a plane.
3. The word *line* indicates a straight line.
4. The word *average* indicates arithmetic mean.

---

1. Carmen is playing with blocks. She arranges stacks of blocks so that each successive level of blocks has 1 fewer block than the level below it and the top level has 1 block. Such a stack with 3 levels is shown below. Carmen wants to make such a stack with 12 levels. How many blocks would she use to build this stack?



A. 66
B. 78
C. 132
D. 144
E. 156

2. To keep up with rising expenses, a motel manager needs to raise the $40.00 room rate by 22%. What will be the new rate?

F. $40.22
G. $42.20
H. $48.00
J. $48.80
K. $62.00

3. As a salesperson, your commission is directly proportional to the dollar amount of sales you make. If your sales are $800, your commission is $112. How much commission would you earn if you had $1,400 in sales?

A. $210
B. $196
C. $175
D. $128
E. $ 64

4. If $7 + 3x = 22$, then $2x = ?$

F. 5
G. 10
H. 12
J. 14
K. $\frac{58}{3}$

5. The total cost of renting a car is $30.00 for each day the car is rented plus $28\frac{1}{2}¢$ for each mile the car is driven. What is the total cost of renting the car for 5 days and driving 350 miles?

(Note: No sales tax is involved.)

A. $ 104.75
B. $ 159.98
C. $ 249.75
D. $ 300.00
E. $1,147.50

6. In any parallelogram $ABCD$, it is always true that the measures of $\angle ABC$ and $\angle BCD$:

F. add up to 180°.
G. add up to 90°.
H. are each greater than 90°.
J. are each 90°.
K. are each less than 90°.

7. What is the least common denominator for adding the fractions $\frac{4}{15}$, $\frac{1}{12}$, and $\frac{3}{8}$?

A. 40
B. 120
C. 180
D. 480
E. 1,440

8. The product $(2x^4y)(3x^5y^8)$ is equivalent to:

F. $5x^9y^9$
G. $6x^9y^8$
H. $6x^9y^9$
J. $5x^{20}y^8$
K. $6x^{20}y^8$

9. It costs a dollars for an adult ticket to a reggae concert and s dollars for a student ticket. The difference between the cost of 12 adult tickets and 18 student tickets is \$36. Which of the following equations represents this relationship between a and s ?

A. $\frac{12a}{18s} = 36$
B. $216as = 36$
C. $|12a - 18s| = 36$
D. $|12a + 18s| = 36$
E. $|18a + 12s| = 36$

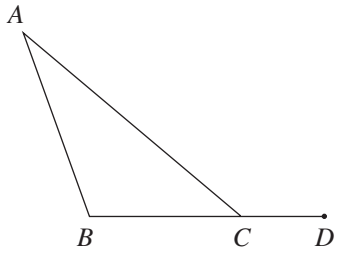
10. If $x > 1$, then which of the following has the LEAST value?

F. $\sqrt{x}$
G. $\sqrt{2x}$
H. $\sqrt{x \cdot x}$
J. $x\sqrt{x}$
K. $x \cdot x$

11. Charles defined a new operation, ♦, on pairs of ordered pairs of integers as follows: $(a,b) \diamond (c,d) = \frac{ac + bd}{ab - cd}$. What is the value of (2,1) ♦ (3,4) ?

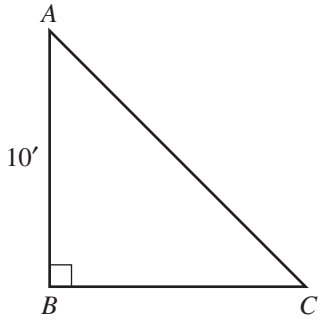
A. –2
B. –1
C. 2
D. 5
E. 10

12. In the figure below, $\angle BAC$ measures 30°, $\angle ABC$ measures 110°, and points B, C, and D are collinear. What is the measure of $\angle ACD$?



F. 150°
G. 140°
H. 130°
J. 120°
K. 110°

13. In the isosceles right triangle below, AB = 10 feet. What is the length, in feet, of $\overline{AC}$?



A. 5
B. 10
C. 20
D. $\sqrt{20}$
E. $10\sqrt{2}$

14. In a bag of 400 jelly beans, 25% of the jelly beans are red in color. If you randomly pick a jelly bean from the bag, what is the probability that the jelly bean picked is NOT one of the red jelly beans?

F. $\frac{1}{2}$
G. $\frac{1}{4}$
H. $\frac{3}{4}$
J. $\frac{1}{16}$
K. $\frac{15}{16}$

15. What polynomial must be added to $x^2 - 2x + 6$ so that the sum is $3x^2 + 7x$?

A. $4x^2 + 5x + 6$
B. $3x^2 + 9x + 6$
C. $3x^2 + 9x - 6$
D. $2x^2 + 9x - 6$
E. $2x^2 - 5x + 6$

16. What is the slope of any line parallel to the line $8x + 9y = 3$ in the standard (x,y) coordinate plane?

F. -8
G. $-\frac{8}{9}$
H. $\frac{8}{3}$
J. 3
K. 8

17. In the standard (x,y) coordinate plane, a line segment has its endpoints at (3,6) and (9,4). What are the coordinates of the midpoint of the line segment?

A. (3,–1)
B. (3, 1)
C. (6, 2)
D. (6, 5)
E. (12,10)

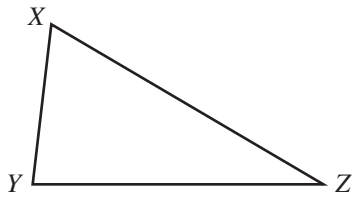
18. When $y = x^2$, which of the following expressions is equivalent to $-y$?

F. $(-x)^2$
G. $-x^2$
H. $-x$
J. x^{-2}
K. x

19. For the function $h(x) = 4x^2 - 5x$, what is the value of $h(-3)$?

A. –93
B. –9
C. 21
D. 51
E. 159

20. For all triangles $\triangle XYZ$ where side $\overline{XZ}$ is longer than side $\overline{YZ}$, such as the triangle shown below, which of the following statements is true?



F. The measure of $\angle X$ is always less than the measure of $\angle Y$.
G. The measure of $\angle X$ is always equal to the measure of $\angle Y$.
H. The measure of $\angle X$ is always greater than the measure of $\angle Y$.
J. The measure of $\angle X$ is sometimes less than the measure of $\angle Y$ and sometimes equal to the measure of $\angle Y$.
K. The measure of $\angle X$ is sometimes greater than the measure of $\angle Y$ and sometimes equal to the measure of $\angle Y$.

21. $|7(-3) + 2(4)|$ = ?

A. –28
B. –13
C. 13
D. 28
E. 29

22. If $x > |y|$, which of the following is the solution statement for x when $y = -4$?

F. x is any real number.
G. $x > 4$
H. $x < 4$
J. $-4 < x < 4$
K. $x > 4$ or $x < -4$

23. The perimeter of a parallelogram is 72 inches, and 1 side measures 12 inches. What are the lengths, in inches, of the other 3 sides?

A. 12, 12, 36
B. 12, 18, 18
C. 12, 24, 24
D. 12, 30, 30
E. Cannot be determined from the given information

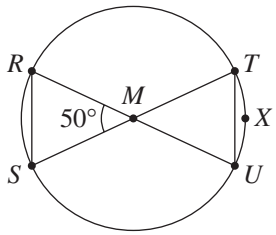
24. The lengths of the corresponding sides of 2 similar right triangles are in the ratio of 2:5. If the hypotenuse of the smaller triangle is 5 inches long, how many inches long is the hypotenuse of the larger triangle?

F. 2
G. 2.5
H. 7
J. 10
K. 12.5

25. The sides of a square are 3 cm long. One vertex of the square is at (3,0) on a square coordinate grid marked in centimeter units. Which of the following points could also be a vertex of the square?

A. (6, 0)
B. $\left(4\frac{1}{2}, 1\frac{1}{2}\right)$
C. (1, 2)
D. (0, –2)
E. (–3, 0)

26. In the circle shown below, M is the center and lies on $\overline{RU}$ and $\overline{ST}$. Which of the following statements is NOT true?



F. $\angle TUM$ measures 65°
G. $\overline{TU}$ is parallel to $\overline{RS}$
H. $\overset{\frown}{TXU}$ measures 50°
J. $\overline{RM} \cong \overline{TM}$
K. $\overline{RS} \cong \overline{SM}$

27. John Jones has decided to go into the business of producing and selling boats. In order to begin this venture, he must invest $10 million in a boat production plant. The cost to produce each boat will be $7,000, and the selling price will be $20,000. Accounting for the cost of the production plant, which of the following expressions represents the profit, in dollars, that John will realize when x boats are produced and sold?

A. $13{,}000x - 10{,}000{,}000$
B. $27{,}000x - 10{,}000{,}000$
C. $9{,}973{,}000x$
D. $20{,}000x$
E. $13{,}000x$

28. If $2x^2 + 6x = 36$, what are the possible values of x ?

F. –12 and 3
G. –6 and 3
H. –3 and 6
J. –3 and 12
K. 12 and 15

29. As a class experiment, a cart was rolled at a constant rate along a straight line. Shawn recorded in the chart below the cart's distance (x), in feet, from a reference point at the start of the experiment and for each of 5 times (t), in seconds.

t	0	1	2	3	4	5
x	10	14	18	22	26	30

Which of the following equations represents this data?

A. $x = t + 10$
B. $x = 4t + 6$
C. $x = 4t + 10$
D. $x = 10t + 4$
E. $x = 14t$

30. To increase the mean of 4 numbers by 2, by how much would the sum of the 4 numbers have to increase?

F. 2
G. 4
H. 6
J. 8
K. 16

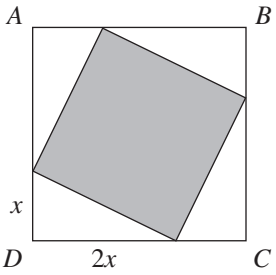
31. Meg pounded a stake into the ground. When she attached a leash to both the stake and her dog's collar, the dog could reach 9 feet from the stake in any direction. Using 3.14 for π, what is the approximate area of the lawn, in square feet, the dog could reach from the stake?

A. 28
B. 57
C. 113
D. 254
E. 283

32. Television screen sizes are the diagonal length of the rectangular screen. Hector recently changed from watching a television with a 13-inch screen to a television with a similar 19-inch screen. If a boxcar appeared 8 inches long on the 13-inch screen, how long, to the nearest inch, will it appear on the 19-inch screen?

F. 10
G. 12
H. 14
J. 16
K. 18

33. In the figure below, *ABCD* is a square. Points are chosen on each pair of adjacent sides of *ABCD* to form 4 congruent right triangles, as shown below. Each of these has one leg that is twice as long as the other leg. What fraction of the area of square *ABCD* is shaded?



A. $\frac{1}{9}$

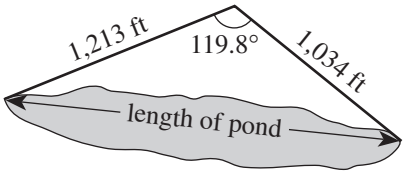
B. $\frac{2}{9}$

C. $\frac{4}{9}$

D. $\frac{5}{9}$

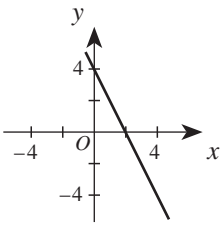
E. $\frac{8}{9}$

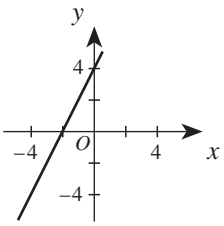
34. A surveyor took and recorded the measurements shown in the figure below. If the surveyor wants to use these 3 measurements to calculate the length of the pond, which of the following would be the most directly applicable?

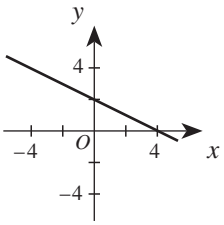


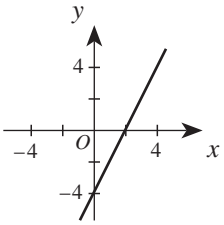
F. The Pythagorean theorem
G. A formula for the area of a triangle
H. The ratios for the side lengths of 30°-60°-90° triangles
J. The ratios for the side lengths of 45°-45°-90° triangles
K. The law of cosines: For any $\triangle ABC$, where a is the length of the side opposite $\angle A$, b is the length of the side opposite $\angle B$, and c is the length of the side opposite $\angle C$, $a^2 = b^2 + c^2 - 2bc\cos(\angle A)$

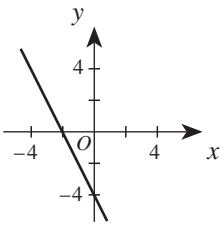
35. Which of the following is the graph of the equation $2x + y = 4$ in the standard (x,y) coordinate plane?

A.


D.


B.


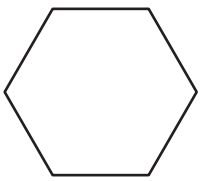
E.


C.


36. Which of the following figures in a plane separates it into half-planes?

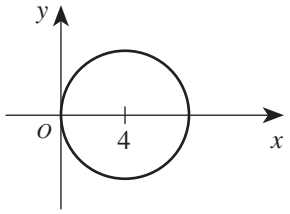
F. A line
G. A ray
H. An angle
J. A point
K. A line segment

37. What is the maximum number of distinct diagonals that can be drawn in the hexagon shown below?



A. 4
B. 5
C. 6
D. 9
E. 12

38. In the standard (x,y) coordinate plane, the center of the circle shown below lies on the x-axis at $x = 4$. If the circle is tangent to the y-axis, which of the following is an equation of the circle?

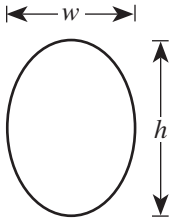


F. $(x + 4)^2 + y^2 = 4$
G. $(x - 4)^2 + y^2 = 16$
H. $(x - 4)^2 - y^2 = 16$
J. $(x - 4)^2 + y^2 = 4$
K. $x^2 + (y - 4)^2 = 16$

39. In what order should $\frac{5}{3}$, $\frac{7}{4}$, $\frac{6}{5}$, and $\frac{9}{8}$ be listed to be arranged by increasing size?

A. $\frac{9}{8} < \frac{6}{5} < \frac{5}{3} < \frac{7}{4}$
B. $\frac{9}{8} < \frac{6}{5} < \frac{7}{4} < \frac{5}{3}$
C. $\frac{7}{4} < \frac{5}{3} < \frac{9}{8} < \frac{6}{5}$
D. $\frac{6}{5} < \frac{9}{8} < \frac{5}{3} < \frac{7}{4}$
E. $\frac{5}{3} < \frac{6}{5} < \frac{7}{4} < \frac{9}{8}$

40. Mai is putting gold foil around the outside of an elliptical picture frame. The perimeter of an ellipse is given by the formula $p = \frac{\pi}{2}\sqrt{2(h^2 + w^2)}$, where h is the height and w is the width, as shown in the diagram below. If an elliptical frame has an outside height equal to 4 inches and an outside width equal to 3 inches, what is its outside perimeter, in inches?



F. $\frac{5}{2}\pi\sqrt{2}$
G. $\frac{7}{2}\pi\sqrt{2}$
H. $5\pi\sqrt{2}$
J. $\frac{\pi}{2}(4\sqrt{2} + 3)$
K. $(4\pi + 3)\sqrt{2}$

41. If $\frac{A}{30} + \frac{B}{105} = \frac{7A + 2B}{x}$ and A, B, and x are integers greater than 1, then what must x equal?

A. 9
B. 135
C. 210
D. 630
E. 3,150

Use the following information to answer questions 42–44.

Kaylee is planning to purchase a car. She will need to borrow some of the money and has a chart, shown below, to use to approximate her monthly payment. The chart gives the approximate monthly payment per $1,000 borrowed.

Monthly payment per $1,000 borrowed for various annual rates and various numbers of payments

Annual interest rate	Number of monthly payments		
	36	48	60
5%	$29.97	$23.03	$18.87
8%	$31.34	$24.41	$20.28
10%	$32.27	$25.36	$21.24
12%	$33.22	$26.34	$22.24

42. Kaylee found a used car she is thinking about purchasing. The list price is $8,795. She calculates that she will need to borrow $6,500. Approximately what would her monthly payment be if she borrowed the money for 36 months at an annual interest rate of 10% ?

F. $164.84
G. $171.21
H. $209.76
J. $234.72
K. $283.81

43. A local dealership is having an end-of-the-model-year clearance sale and is offering 5% annual interest on new-car loans for 36, 48, or 60 months. The maximum amount Kaylee can budget for her monthly car payment is $300. Of the following loan amounts, which one is the maximum Kaylee can borrow at 5% annual interest and stay within her budget?

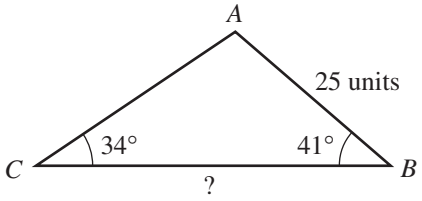
A. $10,000
B. $13,000
C. $14,000
D. $15,000
E. $20,000

44. Another dealership is offering 5-year loans with a 9% annual interest rate. Kaylee uses her chart to estimate the payment per $1,000 borrowed. Of the following, which is most likely the monthly payment per $1,000 borrowed?

F. $20.52
G. $20.76
H. $20.85
J. $21.00
K. $21.74

45. In $\triangle ABC$, shown below, the measure of $\angle B$ is 41°, the measure of $\angle C$ is 34°, and $\overline{AB}$ is 25 units long. Which of the following is an expression for the length, in units, of $\overline{BC}$?

(Note: The law of sines states that, for any triangle, the ratios of the sines of the interior angles to the lengths of the sides opposite those angles are equal.)



A. $\frac{25 \sin 105°}{\sin 41°}$

B. $\frac{25 \sin 105°}{\sin 34°}$

C. $\frac{25 \sin 75°}{\sin 41°}$

D. $\frac{25 \sin 41°}{\sin 105°}$

E. $\frac{25 \sin 34°}{\sin 75°}$

46. For $i^2 = -1$, $(4 + i)^2 = ?$

F. 15
G. 17
H. $15 + 4i$
J. $15 + 8i$
K. $16 + 4i$

47. If r and s can be any integers such that $s > 10$ and $2r + s = 15$, which of the following is the solution set for r ?

A. $r \geq 3$
B. $r \geq 0$
C. $r \geq 2$
D. $r \leq 0$
E. $r \leq 2$

48. Which of the following expressions has a positive value for all x and y such that $x > 0$ and $y < 0$?

F. $y - x$

G. $x + y$

H. x^3y

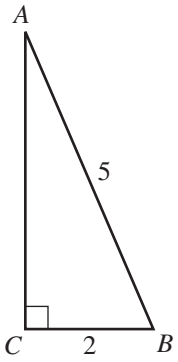
J. $\frac{x^2}{y}$

K. $\frac{x}{y^2}$

49. What is the value of $\log_2 8$?

A. 3
B. 4
C. 6
D. 10
E. 16

50. In the right triangle below, the measure of $\angle C$ is 90°, $AB = 5$ units, and $CB = 2$ units. What is $\tan B$?



F. $\frac{\sqrt{21}}{2}$

G. $\frac{3}{2}$

H. $\frac{\sqrt{21}}{5}$

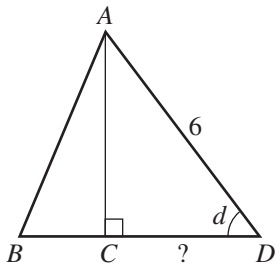
J. $\frac{3}{5}$

K. $\frac{2}{5}$

51. A flight instructor charges \$50 per lesson, plus an additional fee for the use of his plane. The charge for the use of the plane varies directly with the square root of the time the plane is used. If a lesson plus 16 minutes of plane usage costs \$90, what is the total amount charged for a lesson having 36 minutes of plane usage?

A. \$185
B. \$150
C. \$135
D. \$110
E. \$ 60

52. In $\triangle ABD$, shown below, C is on $\overline{BD}$, the length of $\overline{AD}$ is 6 inches, and $\sin d = 0.8$. How many inches long is $\overline{CD}$?

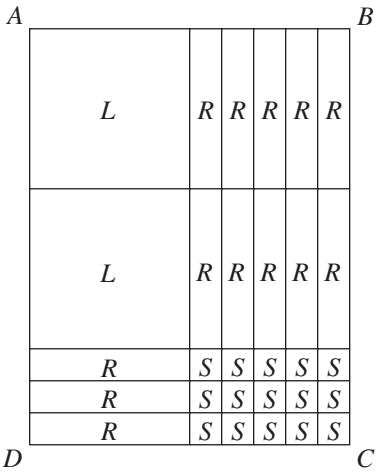


F. 1.2
G. 1.8
H. 3.6
J. 4.8
K. Cannot be determined from the given information

53. For real numbers a and b, when is the equation $|a + b| = |a - b|$ true?

A. Always
B. Only when $a = b$
C. Only when $a = 0$ and $b = 0$
D. Only when $a = 0$ or $b = 0$
E. Never

54. As shown below, rectangle *ABCD* is divided into 2 large squares (labeled *L*) each x inches on a side, 15 small squares (labeled *S*) each y inches on a side, and 13 rectangles (labeled *R*) each x inches by y inches. What is the total area, in square inches, of *ABCD* ?

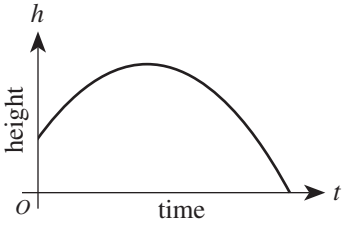


F. $2x + 13xy + 15y$
G. $6x + 16y$
H. $2x^2 + 15y^2$
J. $2x^2 + 8xy + 15y^2$
K. $2x^2 + 13xy + 15y^2$

55. For some real number A, the graph of the line $y = (A + 1)x + 8$ in the standard (x,y) coordinate plane passes through (2,6). What is the slope of this line?

A. –4
B. –3
C. –1
D. 3
E. 7

56. The graph of the equation $h = -at^2 + bt + c$, which describes how the height, h, of a hit baseball changes over time, t, is shown below.



If you alter only this equation's c term, which gives the height at time $t = 0$, the alteration has an effect on which of the following?

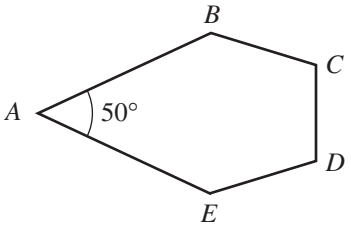
I. The h-intercept
II. The maximum value of h
III. The t-intercept

F. I only
G. II only
H. III only
J. I and III only
K. I, II, and III

57. When graphed in the standard (x,y) coordinate plane, the lines $x = -3$ and $y = x - 3$ intersect at what point?

A. (0, 0)
B. (0,–3)
C. (–3, 0)
D. (–3,–3)
E. (–3,–6)

58. In pentagon *ABCDE*, shown below, $\angle A$ measures 50°. What is the total measure of the other 4 interior angles?



F. 130°
G. 200°
H. 310°
J. 432°
K. 490°

59. For all real numbers b and c such that the product of c and 3 is b, which of the following expressions represents the sum of c and 3 in terms of b ?

A. $b + 3$
B. $3b + 3$
C. $3(b + 3)$
D. $\frac{b+3}{3}$
E. $\frac{b}{3} + 3$

60. Which of the following expresses the number of meters a contestant must travel in a 3-lap race where the course is a circle of radius R meters?

F. $3R$
G. $3\pi R$
H. $3\pi R^2$
J. $6R$
K. $6\pi R$

END OF TEST 2

STOP! DO NOT TURN THE PAGE UNTIL TOLD TO DO SO.

DO NOT RETURN TO THE PREVIOUS TEST.

5
Scoring Your Practice Tests

How to Score the Multiple-Choice Tests

Follow the instructions below and on the following pages to score the multiple-choice portions of the practice test and to review your performance.

Raw Scores

The number of questions you answered correctly on each test and in each subscore area is your raw score. Because there are many forms of the ACT, each containing different questions, some forms will be slightly easier (and some slightly harder) than others. A raw score of 67 on one form of the English Test, for example, may be about as difficult to earn as a raw score of 70 on another form of that test.

To compute your raw scores, check your answers with the scoring keys on pages 60–62. Count the number of correct answers for each of the four tests and seven subscore areas, and enter the number in the blanks provided on those pages. These numbers are your raw scores on the tests and subscore areas.

Scale Scores

To adjust for the small differences that occur among different forms of the ACT, the raw scores for tests and subscore areas are converted into *scale scores.* Scale scores are printed on the reports sent to you and your college and scholarship choices.

When your raw scores are converted into scale scores, it becomes possible to compare your scores with those of examinees who completed different test forms. For example, a scale score of 26 on the English Test has the same meaning regardless of the form of the ACT on which it is based.

To determine the scale scores corresponding to your raw scores on the practice test, use the score conversion tables on pages 63–64. Table 1 on page 63 shows the raw-to-scale score conversions for the total tests, and Table 2 on page 64 shows the raw-to-scale score conversions for the subscore areas. Because each form of the ACT is unique, each form has somewhat different conversion tables. Consequently, these tables provide only approximations of the raw-to-scale score conversions that would apply if a different form of the ACT were taken. Therefore, the scale scores obtained from the practice test would not be expected to match precisely the scale scores received from a national administration of the ACT.

Computing the Composite Score

The Composite score is the average of the four scale scores in English, Mathematics, Reading, and Science. If you left any of these tests blank, a Composite score cannot be calculated. If you take the ACT Plus Writing, your Writing Test results do **not** affect your Composite score.

Percent At or Below

Even scale scores don't tell the whole story of your test performance. You may want to know how your scores compare to the scores of other students who take the ACT.

The norms table (Table 3 on page 65) enables you to compare your scores on the sample test with the scores of recent high school graduates who tested as sophomores, juniors, or seniors. The numbers reported in Table 3 are cumulative percents. A cumulative percent is the percent of students who scored *at* or *below* a given score. For example, a Composite score of 20 has a cumulative percent of 50. This means that 50% of the ACT-tested high school students had a Composite score of 20 or lower.

Remember that your scores and percent at or below on the practice test are only *estimates* of the scores that you will obtain on an actual form of the ACT. Test scores are only one indicator of your level of academic knowledge and skills. Consider your scores in connection with your grades, your performance in outside activities, and your career interests.

College Readiness Standards

To add to the information you receive about your performance on the ACT, we have developed College Readiness Standards. These Standards help you to more fully understand what your total test score means for each academic area assessed: English, Mathematics, Reading, Science, and Writing. The College Readiness Standards describe the types of skills, strategies, and understandings you will need to make a successful transition from high school to college. Standards are provided for six score ranges that reflect the progression and complexity of skills in the academic areas measured in the ACT tests. The College Readiness Standards can be found at **www.act.org/standards.**

Reviewing Your Performance on the Practice Multiple-Choice Tests

After you have determined your scale scores, consider the following as you evaluate how you did on the multiple-choice portions of the practice test.

- Did you run out of time before you completed a test? If so, reread the information in this booklet on pacing yourself. Perhaps you need to adjust the way you used your time in responding to the questions. It is to your advantage to answer every question and pace yourself so that you can do so. Remember there is no penalty for guessing.
- Did you spend too much time trying to understand the directions to the tests? If so, read the directions for each test again thoroughly. The directions in the practice test are exactly like the directions that will appear in your test booklet on the test day. Make sure you understand them now, so you won't have to spend too much time studying them when you take the actual test.
- Review the questions that you missed. Did you select a response that was an incomplete answer or that did not directly respond to the question being asked? Try to figure out what you overlooked in answering the questions.
- Did a particular type of question confuse you? Did the questions you missed come from a particular subscore area? In reviewing your responses to the practice test, check to see whether a particular type of question or a particular subscore area was more difficult for you or took more of your time.

Test 2: Mathematics—Scoring Key

	Key	Subscore Area* EA	AG	GT
1.	B	_____		
2.	J	_____		
3.	B	_____		
4.	G	_____		
5.	C	_____		
6.	F			_____
7.	B	_____		
8.	H	_____		
9.	C	_____		
10.	F		_____	
11.	B	_____		
12.	G			_____
13.	E			_____
14.	H	_____		
15.	D	_____		
16.	G		_____	
17.	D		_____	
18.	G	_____		
19.	D		_____	
20.	F			_____
21.	C	_____		
22.	G		_____	
23.	C			_____
24.	K			_____
25.	A		_____	
26.	K			_____
27.	A	_____		
28.	G	_____		
29.	C		_____	
30.	J	_____		
31.	D			_____
32.	G	_____		
33.	D			_____
34.	K			_____
35.	A		_____	
36.	F			_____
37.	D			_____
38.	G		_____	
39.	A	_____		
40.	F	_____		
41.	C		_____	
42.	H	_____		
43.	D	_____		
44.	G	_____		
45.	B			_____
46.	J		_____	
47.	E		_____	
48.	K	_____		
49.	A		_____	
50.	F			_____
51.	D		_____	
52.	H			_____
53.	D		_____	
54.	K			_____
55.	C		_____	
56.	K		_____	
57.	E		_____	
58.	K			_____
59.	E	_____		
60.	K			_____

Number Correct (Raw Score) for:	
Pre-Alg./Elem. Alg. (EA) Subscore Area	_____ (24)
Inter. Alg./Coord. Geo. (AG) Subscore Area	_____ (18)
Plane Geo./Trig. (GT) Subscore Area	_____ (18)
Total Number Correct for Math Test (EA + AG + GT)	_____ (60)

* EA = Pre-Algebra/Elementary Algebra
AG = Intermediate Algebra/Coordinate Geometry
GT = Plane Geometry/Trigonometry

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TABLE 1

Procedures Used to Obtain Scale Scores From Raw Scores for the ACT Practice Test

On each of the four multiple-choice tests on which you marked any responses, the total number of correct responses yields a raw score. Use the table below to convert your raw scores to scale scores. For each test, locate and circle your raw score or the range of raw scores that includes it in the table below. Then, read across to either outside column of the table and circle the scale score that corresponds to that raw score. As you determine your scale scores, enter them in the blanks provided on the right. The highest possible scale score for each test is 36. The lowest possible scale score for any test on which you marked any response is 1.

Next, compute the Composite score by averaging the four scale scores. To do this, add your four scale scores and divide the sum by 4. If the resulting number ends in a fraction, round it off to the nearest whole number. (Round down any fraction less than one-half; round up any fraction that is one-half or more.) Enter this number in the blank. This is your Composite score. The highest possible Composite score is 36. The lowest possible Composite score is 1.

	Your Scale Score
English	_____
Mathematics	_____
Reading	_____
Science	_____
Sum of scores	_____
Composite score (sum ÷ 4)	_____

NOTE: If you left a test completely blank and marked no items, do not list a scale score for that test. If any test was completely blank, do not calculate a Composite score.

Scale Score	**Raw Scores**				**Scale Score**
	Test 1 English	**Test 2** Mathematics	**Test 3** Reading	**Test 4** Science	
36	75	60	40	40	**36**
35	74	59	39	—	**35**
34	73	58	38	39	**34**
33	72	57	—	—	**33**
32	71	55-56	37	38	**32**
31	70	54	36	—	**31**
30	68-69	52-53	35	37	**30**
29	67	50-51	34	36	**29**
28	65-66	48-49	32-33	35	**28**
27	63-64	45-47	31	34	**27**
26	61-62	43-44	30	33	**26**
25	58-60	41-42	28-29	31-32	**25**
24	56-57	38-40	27	30	**24**
23	54-55	36-37	25-26	28-29	**23**
22	52-53	34-35	24	27	**22**
21	49-51	32-33	23	25-26	**21**
20	46-48	30-31	21-22	23-24	**20**
19	43-45	28-29	20	21-22	**19**
18	40-42	25-27	19	19-20	**18**
17	38-39	21-24	18	17-18	**17**
16	36-37	18-20	17	15-16	**16**
15	33-35	15-17	15-16	14	**15**
14	30-32	12-14	14	13	**14**
13	28-29	09-11	12-13	11-12	**13**
12	26-27	07-08	10-11	10	**12**
11	24-25	06	08-09	09	**11**
10	21-23	05	07	07-08	**10**
9	18-20	04	06	06	**9**
8	15-17	03	05	05	**8**
7	12-14	—	04	04	**7**
6	10-11	02	—	03	**6**
5	08-09	—	03	02	**5**
4	06-07	01	02	—	**4**
3	04-05	—	—	01	**3**
2	02-03	—	01	—	**2**
1	00-01	00	00	00	**1**

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TABLE 2

Procedures Used to Obtain Scale Subscores From Raw Scores for the ACT Practice Test

For each of the seven subscore areas, the total number of correct responses yields a raw score. Use the table below to convert your raw score to scale subscores. For each of the seven subscore areas, locate and circle either the raw score or the range of raw scores that includes it in the table below. Then, read across to either outside column of the table and circle the scale subscore that corresponds to that raw score. As you determine your scale subscores, enter them in the blanks provided on the right. The highest possible scale subscore is 18. The lowest possible scale subscore is 1.

If you left a test completely blank and marked no items, do not list any scale subscores for that test.

Your Scale Subscore

English

Usage/Mechanics (UM) _____

Rhetorical Skills (RH) _____

Mathematics

Pre-Algebra/Elem. Algebra (EA) _____

Inter. Algebra/Coord. Geometry (AG) _____

Plane Geometry/Trigonometry (GT) _____

Reading

Social Studies/Sciences (SS) _____

Arts/Literature (AL) _____

Scale Subscore	Raw Scores							Scale Subscore
	Test 1 English		Test 2 Mathematics			Test 3 Reading		
	Usage/ Mechanics	Rhetorical Skills	Pre-Algebra/ Elem. Algebra	Inter. Algebra/ Coord. Geometry	Plane Geometry/ Trigonometry	Social Studies/ Sciences	Arts/ Literature	
18	39-40	35	24	18	18	20	20	**18**
17	38	34	23	17	—	18-19	19	**17**
16	36-37	33	22	16	16-17	17	18	**16**
15	34-35	31-32	20-21	15	15	16	17	**15**
14	33	29-30	19	13-14	13-14	14-15	16	**14**
13	31-32	27-28	18	12	12	13	15	**13**
12	30	25-26	17	10-11	10-11	12	14	**12**
11	28-29	22-24	15-16	09	09	10-11	13	**11**
10	25-27	20-21	13-14	07-08	07-08	09	12	**10**
9	23-24	17-19	12	06	05-06	08	11	**9**
8	21-22	15-16	10-11	05	04	06-07	10	**8**
7	19-20	12-14	07-09	04	03	05	09	**7**
6	16-18	11	06	03	—	04	07-08	**6**
5	14-15	09-10	04-05	02	02	—	05-06	**5**
4	11-13	06-08	03	—	—	03	04	**4**
3	08-10	04-05	02	01	01	02	03	**3**
2	05-07	02-03	01	—	—	01	01-02	**2**
1	00-04	00-01	00	00	00	00	00	**1**

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TABLE 3
Norms Table

Use the norms table below to determine your estimated percent at or below for each of your multiple-choice scale scores.

In the far left column, circle your scale score for the English Test (from page 63). Then read across to the percent at or below column for that test; circle or put a check mark beside the corresponding percent at or below. Use the same procedure for each test (from page 63) and subscore area (from page 64). You may find it easier to use the right column of scale scores for your Science Test and Composite scores.

As you mark your percents at or below, enter them in the blanks provided at the right.

You may also find it helpful to compare your performance with the national mean (average) score for each of the four tests, subscore areas, and the Composite as shown at the bottom of the norms table.

	Your Estimated Percent At or Below on Practice Test
English	_____
Usage/Mechanics	_____
Rhetorical Skills	_____
Mathematics	_____
Pre-Algebra/Elem. Alg.	_____
Alg./Coord. Geometry	_____
Plane Geometry/Trig.	_____
Reading	_____
Soc. Studies/Sciences	_____
Arts/Literature	_____
Science	_____
Composite	_____

National Distributions of "Percent At or Below" for ACT Test Scores
ACT-Tested High School Graduates of 2002, 2003, and 2004.

Score	**ENGLISH**	Usage/Mechanics	Rhetorical Skills	**MATHEMATICS**	Pre-Algebra/Elem. Alg.	Alg./Coord. Geometry	Plane Geometry/Trig.	**READING**	Soc. Studies/Sciences	Arts/Literature	**SCIENCE**	**COMPOSITE**	*Score*
36	**99**			**99**				**99**			**99**	**99**	**36**
35	**99**			**99**				**99**			**99**	**99**	**35**
34	**99**			**99**				**98**			**99**	**99**	**34**
33	**99**			**99**				**97**			**99**	**99**	**33**
32	**98**			**98**				**96**			**99**	**99**	**32**
31	**97**			**97**				**94**			**98**	**98**	**31**
30	**95**			**96**				**92**			**97**	**97**	**30**
29	**93**			**95**				**90**			**96**	**95**	**29**
28	**91**			**92**				**87**			**95**	**93**	**28**
27	**88**			**89**				**83**			**93**	**90**	**27**
26	**85**			**85**				**79**			**90**	**86**	**26**
25	**81**			**81**				**75**			**86**	**82**	**25**
24	**76**			**76**				**70**			**80**	**77**	**24**
23	**71**			**70**				**65**			**74**	**71**	**23**
22	**66**			**65**				**60**			**66**	**64**	**22**
21	**60**			**60**				**53**			**58**	**57**	**21**
20	**53**			**55**				**48**			**49**	**50**	**20**
19	**46**			**50**				**42**			**40**	**42**	**19**
18	**39**	99	99	**43**	99	99	99	**36**	99	99	**30**	**34**	**18**
17	**33**	98	99	**34**	97	99	99	**31**	99	97	**22**	**27**	**17**
16	**27**	95	98	**25**	94	98	99	**26**	94	91	**16**	**20**	**16**
15	**22**	90	95	**15**	89	97	96	**21**	89	86	**12**	**14**	**15**
14	**16**	85	89	**08**	83	93	91	**16**	83	79	**08**	**09**	**14**
13	**12**	79	82	**03**	76	86	84	**11**	75	73	**05**	**05**	**13**
12	**09**	74	75	**01**	68	79	75	**06**	68	65	**03**	**02**	**12**
11	**07**	66	64	**01**	59	68	65	**03**	60	56	**02**	**01**	**11**
10	**04**	56	52	**01**	49	55	53	**01**	51	47	**01**	**01**	**10**
09	**03**	45	39	**01**	41	41	38	**01**	38	38	**01**	**01**	**09**
08	**02**	36	26	**01**	31	27	25	**01**	28	30	**01**	**01**	**08**
07	**01**	26	17	**01**	20	16	14	**01**	16	22	**01**	**01**	**07**
06	**01**	17	10	**01**	09	10	09	**01**	10	16	**01**	**01**	**06**
05	**01**	11	06	**01**	03	05	05	**01**	06	09	**01**	**01**	**05**
04	**01**	06	03	**01**	01	03	03	**01**	03	04	**01**	**01**	**04**
03	**01**	02	01	**01**	01	01	02	**01**	01	01	**01**	**01**	**03**
02	**01**	01	01	**01**	01	01	01	**01**	01	01	**01**	**01**	**02**
01	**01**	01	01	**01**	01	01	01	**01**	01	01	**01**	**01**	**01**
Mean	**20.3**	10.1	10.5	**20.6**	10.8	10.2	10.4	**21.2**	10.8	10.9	**20.8**	**20.9**	
S.D.	**5.8**	3.7	3.1	**5.1**	3.4	2.9	3.0	**6.1**	3.5	3.8	**4.6**	**4.8**	

Note: These norms are the source of national and state norms printed on ACT score reports during the 2004–2005 testing year. Sample size: 3,440,889.