## **ACT Test 1 Section 2**



3 If  $x^{-2} - 9 = 0$ , solve for x. A 3 **B**  $-\frac{1}{3}$ (C)  $\frac{1}{3}$  (D) ± 3  $(\mathbb{E}) \pm \frac{1}{3}$ If a and b are odd integers, which of the following must be an even integer? I.  $\frac{a+b}{2}$ II. ab-1III.  $\frac{ab+1}{2}$ (F) I only (G) II only (H) I and II only (J) II and III only (K) I, II, and III only 4 If  $\frac{1}{b} = \frac{1}{4}$ , then b = $\bigcirc \frac{1}{4}$  $\mathbb{B}\frac{3}{4}$  $\mathbb{D}\frac{4}{3}$  $\bigcirc \frac{13}{4}$ (E) 12

6 If the cost of a box of 12 pens is \$7.20 and a box of 10 If  $\frac{2}{3}x = 1$ , then  $\frac{3}{4} + x =$ 16 pencils costs \$4.00, what is the cost of 3 pens and 3 pencils?  $\mathbb{F}\frac{9}{4}$ **G** 2 (F) \$1.30 **(G)** \$2.55  $\bigcirc \frac{7}{4}$ (J) 1 **(H)** \$2.65 **(J)** \$3.50  $(\mathbf{K}) \frac{3}{4}$ **(K)** \$9.20 **1** If  $\frac{2}{x} = \frac{3}{7}$ , then x =11 If x = 3 and y = -2, then  $\frac{1}{2x} + \frac{1}{3y} - \frac{2xy}{3x + 2y} =$  $\mathbb{B}\frac{8}{5}$  $\bigcirc \frac{7}{5}$ **A** 6 **B** 7 (C) 9 (c)  $\frac{9}{5}$  (d)  $\frac{11}{5}$ (E) 16  $\mathbb{E} \frac{12}{5}$ What value must *x* take on in order for the 8 following equation to be true: 12 If  $\frac{7}{x+4} = \frac{5}{x+6}$ , then x =  $\frac{7}{x+3} = \frac{8}{x+5}$ ? (F) -11 **G** –7 (F) 3 **G** 5 **H** 5 (J) 7 (H) 7 **(J)** 8 (K) 11 (K) 11 13 If  $\frac{3}{\frac{4}{g}} = (7 - a)g$ , then a =Two statements, p and q, are defined as follows: 9 p: a + b < c + dq: a < c, b < dWhich of the following is true?  $\bigcirc \frac{3}{4}$ **B**  $\frac{16}{3}$ (B) p and q imply  $(\mathbf{A})$  p implies q.  $\bigcirc \frac{25}{4}$ **(C)** 5 each other. **(C)** q implies p **D** q is the contrapositive (E) 17 of p. (E) Neither q or p implies the other.





The diagonal of a square has endpoints (3, 6) and 34 (-1, 2). What is its area?

- (F) 10 (**G**) 13  $(\mathbf{J})$  32 **H**) 16 (K) 40
- Line A passes through point P(-6, 5) and makes a 45° 35 angle with the x-axis. The equation of a perpendicular (to line A) line passing through point P is
  - (A) y = x 11(B) y = -x + 11(C) y = -x 1(D) y = x 3(E) v = -x - 11
- At what point do the lines y = 7x and 3y = 4x + 736 intersect?
  - **(F)** (7, 17) **G** (17, 56)  $\left( \mathbf{J} \left( \frac{7}{17}, \frac{49}{17} \right) \right)$ **H** (0, 7)  $(\mathbf{K}) \left( \frac{7}{17}, \frac{1}{17} \right)$
- If y = 3x lies in Quadrants I and III, then 37 y = |3x| lies in Quadrants
  - (B) I and II. (A) III and IV.
  - **D** I, II, and III. **(C)** I and III.
  - (E) I only.

38 The coordinates of the vertices of a right triangle are (1, 3), (5, 3), and (1, 6). Find the slope of its hypotenuse.

(F) 
$$-\frac{3}{4}$$
 (G)  $-\frac{5}{3}$   
(H)  $\frac{4}{3}$  (J)  $-\frac{1}{4}$   
(K) 2

39 If point P has coordinates (3, -6) and point Q has coordinates (15, 5), the coordinates of the midpoint of the line segment between the two points is

(A) 
$$\left(9, -\frac{1}{2}\right)$$
 (B)  $\left(18, \frac{1}{2}\right)$   
(C)  $(15, 3)$  (D)  $\left(-\frac{1}{2}, 1\right)$   
(E)  $\left(15, -\frac{1}{2}\right)$ 

40

What is the distance between the line y = 4x + 9 and the point (10, 4)?

(F) 
$$\frac{8}{15}$$
 (G) 8  
(H)  $\frac{52}{\sqrt{15}}$  (J)  $\frac{85}{19}$   
(K)  $\frac{45}{\sqrt{17}}$ 

In which quadrants does the solution of the system lie? 41  $\int y < -x + 3$  $\int y < x - 3$ 

- (A) III and IV
- **B** I, III and IV D I, and II
- C II and IV (E) II and III

42

In the system  $\begin{cases}
ax + by = 20 \\
bx + ay = 16
\end{cases}$ the solution is x = 2 and y = 1. What are the coefficients *a* and *b*?

(F) 
$$a = 2 \\ b = 1$$
  
(G)  $a = 8 \\ b = 7$   
(H)  $a = 8 \\ b = 4$   
(J)  $a = 7 \\ b = 14$   
(K)  $a = 9 \\ b = 4$ 

43 A circle whose center is at C(-4, 1) passes through the point D(-2, 2). Find the length of the radius.





A square is inscribe in a circle. The area of the circle is  $\pi$ . What is the area of the square?





45

Circles A, B, and C are tangent to one another. Find the radius of circle A if AB = 7, AC = 5, and BC = 9.









 $(\mathbf{K})$  csc  $\alpha$ 

59

Find the area of the triangle below.



60 Which of the following is a sketch of  $y = |\sin x|$ ?





ACT Test 1 Answer Sheet

	Name				Date			
	Teacher				Class			
Section #1							Section #2	
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	A       B       C       D         F       G       H       J         A       B       C       D         F       G       H       J         A       B       C       D         F       G       H       J         A       B       C       D         F       G       H       J         A       B       C       D         F       G       H       J         A       B       C       D         F       G       H       J         A       B       C       D         F       G       H       J         A       B       C       D         F       G       H       J         A       B       C       D         F       G       H       J         A       B       C       D         F       G       H       J         A       B       C       D         F       G       H       J         A       B       C       D         F       <	28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47	F G H J $A B C D$ $F G H J$ $A B C D$	<ul> <li>55</li> <li>56</li> <li>57</li> <li>58</li> <li>59</li> <li>60</li> <li>61</li> <li>62</li> <li>63</li> <li>64</li> <li>65</li> <li>66</li> <li>67</li> <li>68</li> <li>69</li> <li>70</li> <li>71</li> <li>72</li> <li>73</li> <li>74</li> </ul>	ABCD FGHJ FGHJ FGHJ	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	Section #2 A B C D E F G H J K A B C D E F G H J K	
21 22 23 24 25 26 27	$ \begin{array}{c}         & B \\         & B \\         & C \\         & D \\         & C \\         & B \\         & C \\         & D \\         & C \\         $	48 49 50 51 52 53 54	$ \begin{array}{c} F G H J \\ A B C D \\ F G H J \\ A B C D \\ F G H J \\ A B C D \\ F G H J \\ A B C D \\ F G H J \\ \end{array} $	75		21 22 23 24 25	ABCDE FGHJK ABCDE FGHJK ABCDE	

1

## Section #2 (cont.)

26	FGHJK	51	ABCDE	1	ABCD	26	FGHJ
27	ABCDE	52	FGHJK	2	FGHJ	27	ABCD
28	FGHJK	53	ABCDE	3	ABCD	28	FGHJ
29	ABCDE	54	FGHJK	4	FGHJ	29	ABCD
30	FGHJK	55	ABCDE	5	ABCD	30	FGHJ
31	ABCDE	56	FGHJK	6	FGHJ	31	ABCD
32	FGHJK	57	ABCDE	7	ABCD	32	FGHJ
33	ABCDE	58	FGHJK	8	FGHJ	33	ABCD
34	FGHJK	59	ABCDE	9	ABCD	34	FGHJ
35	ABCDE	60	FGHJK	10	FGHJ	35	ABCD
36	FGHJK			11	ABCD	36	FGHJ
37	ABCDE			12	FGHJ	37	ABCD
38	FGHJK			13	ABCD	38	FGHJ
39	ABCDE			14	FGHJ	39	ABCD
40	FGHJK			15	ABCD	40	FGHJ
41	ABCDE			16	FGHJ		
42	FGHJK			17	ABCD		
43	ABCDE			18	FGHJ		
44	FGHJK			19	ABCD		
45	ABCDE			20	FGHJ		
46	FGHJK			21	ABCD		
47	ABCDE			22	FGHJ		
48	FGHJK			23	ABCD		
49	ABCDE			24	FGHJ		
50	FGHJK			25	ABCD		

Section #3

## Section #4

18

19

20

21

22

23

24

25

FGHJ

ABCD

FGHJ ABCD

FGHJ

ABCD

FGHJ ABCD

1	ABCD	26	FGHJ
2	FGHJ	27	ABCD
3	ABCD	28	FGHJ
4	FGHJ	29	ABCD
5	ABCD	30	FGHJ
6	FGHJ	31	ABCD
7	ABCD	32	FGHJ
8	FGHJ	33	ABCD
9	ABCD	34	FGHJ
10	FGHJ	35	ABCD
11	ABCD	36	FGHJ
12	FGHJ	37	ABCD
13	ABCD	38	FGHJ
14	FGHJ	39	ABCD
15	ABCD	40	FGHJ
16	FGHJ		
17	ABCD		