



## ACT COMPASS Preparation Worksheet

### Algebra: Linear Equations/ Two Variable

Find the slope of the line through each pair of points.

1.  $(19, -16), (-7, -15)$   
 $-\frac{1}{26}$

2.  $(-4, 7), (-6, -4)$   
 $\frac{11}{2}$

3.  $(17, -13), (17, 8)$   
**Undefined**

4.  $(3, 0), (-11, -15)$   
 $\frac{15}{14}$

5.  $(6, -10), (-15, 15)$   
 $-\frac{25}{21}$

6.  $(3, -20), (5, 8)$   
**14**

7.  $(-19, 12), (-9, 1)$   
 $-\frac{11}{10}$

8.  $(6, -12), (15, -3)$   
**1**

Find the slope of each line.

9.  $y = -\frac{5}{2}x - 5$   
 $-\frac{5}{2}$

10.  $y = -x + 3$   
**-1**

11.  $2x - y = 1$   
**2**

12.  $8x + 3y = -9$   
 $-\frac{8}{3}$

13.  $x - y = -2$   
**1**

14.  $3x + 2y = 6$   
 $-\frac{3}{2}$

15.  $y = -1$   
**0**

16.  $-2y - 10 + 2x = 0$   
**1**

17.  $3x + 20 = -4y$   
 $-\frac{3}{4}$

18.  $-1 = -2x + y$   
**2**

19.  $0 = 5y - x$   
 $\frac{1}{5}$



Write the slope-intercept form of the equation of each line.

20.  $3x - 2y = -16$   
 $y = \frac{3}{2}x + 8$

22.  $6x + 5y = -15$   
 $y = -\frac{6}{5}x - 3$

21.  $9x - 7y = -7$   
 $y = \frac{9}{7}x + 1$

23.  $11x - 4y = 32$   
 $y = \frac{11}{4}x - 8$

Write the slope intercept of the equation of the line through the given point with the given slope.

24. through:  $(1, 2)$ , slope = 7  
 $y = 7x - 5$

26. through:  $(2, -4)$ , slope = -1  
 $y = -x - 2$

25. through:  $(-2, 5)$ , slope = -4  
 $y = -4x - 3$

27. through:  $(3, 1)$ , slope =  $\frac{1}{2}$   
 $y = \frac{1}{2}x - \frac{1}{2}$

Write the slope intercept form of the equation of the line described.

28. through:  $(4, 2)$ , parallel to  $y = -\frac{3}{4}x - 5$   
 $y - 2 = -\frac{3}{4}x + 5$

29. through:  $(-4, 0)$ , perpendicular to  $y = \frac{3}{4}x - 2$   
 $y = -\frac{4}{3}x - \frac{16}{3}$

30. through:  $(2, 0)$ , parallel to  $y = \frac{1}{3}x + 3$   
 $y = \frac{1}{3}x - \frac{2}{3}$

31. through:  $(-2, 4)$ , perpendicular to  $y = -\frac{5}{2}x + 5$   
 $y = \frac{2}{5}x + \frac{24}{5}$

Solve the word problems below.

32. The difference of two numbers is 3. Their sum is 13. Find the numbers.  
**5 and 8**

33. The school that Stefan goes to is selling tickets to a choral performance. On the first day of ticket sales the school sold 3 senior citizen tickets and 1 child ticket for a total of \$38. The school took in \$52 on the second day by selling 3 senior citizen tickets and 2 child tickets. Find the price of a senior citizen ticket and the price of a child ticket.  
**Senior Citizen Ticket: \$8; Child Ticket: \$14**



34. *The state fair is a popular field trip destination. This year the senior class at High School A and the senior class at High School B both planned trips there. The senior class at High School A rented and filled 8 vans and 8 buses with 240 students. High School B rented and filled 4 vans and 1 bus with 54 students. Every van had the same number of students in it as did the buses. Find the number of students in each van and in each bus.*  
**Van: 8; Bus 22**
35. *Brenda's school is selling tickets to a spring musical. On the first day of ticket sales the school sold 3 senior citizen tickets and 9 child tickets for a total of \$75. The school took in \$67 on the second day by selling 8 senior citizen tickets and 5 child tickets. What is the price of one senior citizen ticket and one child ticket?*  
**Senior Citizen Ticket: \$4; Child Ticket: \$7**
36. *Matt and Ming are selling fruit for a school fundraiser. Customers can buy small boxes of oranges and large boxes of oranges. Matt sold 3 small boxes of oranges and 14 large boxes of oranges for a total of \$203. Ming sold 11 small boxes of oranges and 11 large boxes of oranges for a total of \$220. Find the cost each of one small box of oranges and one large box of oranges.*  
**Small box of oranges: \$7; Large box of oranges: \$13**
37. *DeShawn and Shayna are selling flower bulbs for a school fundraiser. Customers can buy bags of wildflower bulbs and bags of daffodil bulbs. DeShawn sold 10 bags of wildflower bulbs and 12 bags of daffodil bulbs for a total of \$380. Shayna sold 6 bags of wildflower bulbs and 8 bags of daffodil bulbs for a total of \$244. What is the cost each of one bag of wildflower bulbs and one bag of daffodil bulbs?*  
**Bag of wildflower bulbs: \$14; Bag of daffodil bulbs: \$20**