

Unit 2 Review (continued)

11. The table below shows the cost to ride the New York City subway in various years.

Year	1985	1987	1990	1994	2000	2007
Subway Fare	\$0.90	\$1.00	\$1.15	\$1.25	\$1.50	\$2.00

Source: Metropolitan Transportation Authority (MTA)

Use a regression line to estimate the cost of a subway ride in 2014.

11. Nope.

Solve each inequality.

12. $4x - 5 < 7x + 10$

$-4x - 10 < -4x + 10$
 $-15 < 3x - 5 < 15$

Solve each compound inequality.

14. $5 < 2t + 7 < 11$

$-7 < 2t < 4$
 $-2 < 2t < 4$
 $-1 < t < 2$

13. $2(5a - 4) - 3(6 + 2a) \leq 6$

$10a - 8 - 18 - 6a \leq 6$
 $4a - 26 \leq 6$
 $4a \leq 32$
 $a \leq 8$

15. $13 < 4 - 3v$ or $2v - 14 > 8$

$-9 < -3v$ or $2v > 22$
 $3 > v$ or $v > 11$

For Questions 16 and 17, solve each open sentence. Then graph the solution set.

16. $|3b - 5| \leq 7$

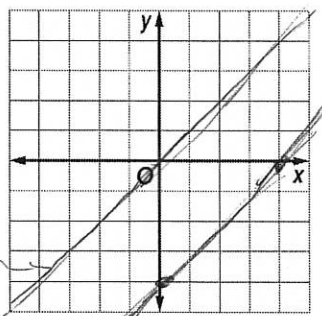
$3b - 5 \leq 7$ or $3b - 5 \geq -7$
 $3b \leq 12$ or $3b \geq -2$
 $b \leq 4$ or $b \geq -2/3$

17. $|w + 5| > 1$

$w + 5 > 1$ or $w + 5 < -1$
 $w > -4$ or $w < -6$

18. Use a graph to determine whether the system $x - y = 4$ and $y = x$ has no solution, one solution, or infinitely many solutions.

$x - y = 4$
 $0 - 4 = 4$
 $-4 = 4$



For Questions 19-22, determine the best method to solve each system of equations. Then solve the system.

19. $x + y = 2$ and $x + 2x - 4 = 2$

$y = 2 - x$
 $3x - 4 = 2$
 $3x = 6$
 $x = 2$
 $y = 0$

20. $-x - 5y = 7$ and $x + y = 1$

$-4y = 8$
 $y = -2$
 $x = 3$

21. $3x + y = 26$ and $3x + 3y = 18$

$x = 1$
 $3x - 4 = 26$
 $3x = 30$
 $x = 10$
 $3(10) + y = 26$
 $30 + y = 26$
 $y = -4$

22. $4x - 8y = 52$ and $7x + 4y = 1$

$4x - 8y = 52$
 $7x + 4y = 1$
 $14x + 8y = 2$
 $18x = 54$
 $x = 3$

23. Solve the system of inequalities by graphing. (don't do this- it'll be covered next semester!)

$2x - y > 3$
 $x + 2y \leq 4$

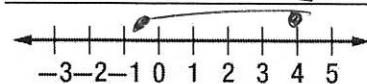
12. $x > -5$

13. $a \leq 8$

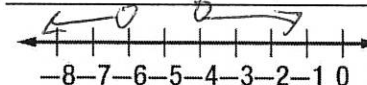
14. $-1 < t < 2$

15. $v < -3$ or $v > 11$

16. $b \geq -2/3$ or $b \leq 4$



17. $w < -6$ or $w > -4$



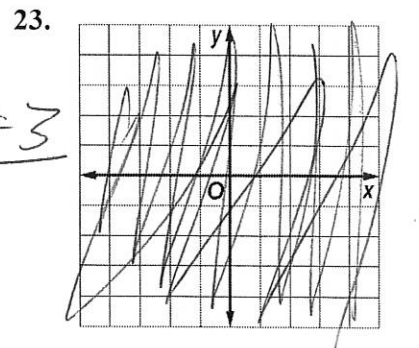
18. no solutions

19. (1, 1)

20. (3, -2)

21. (10, -4)

22. (3, -5)



Unit 2 Review

(Chapters 3-6)

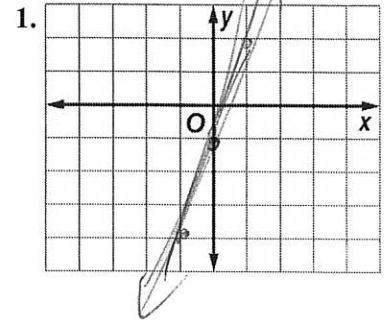
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1. Graph $3x - y = 1$.

$$3x - y = 1$$

$$-y = -3x + 1$$

$$y = 3x - 1$$



2. Solve $4x + 9 = 4x + 13$.

$$9 = 13$$

2. No solution

3. Find the value of r so that the line through $(2, -3)$ and $(-4, r)$ has a slope of $-\frac{1}{2}$.

$$\frac{r - (-3)}{-4 - 2} = -\frac{1}{2} \Rightarrow \frac{r + 3}{-6} = -\frac{1}{2} \Rightarrow 2r + 6 = 6 \Rightarrow 2r = 0 \Rightarrow r = 0$$

3. $r = 0$

4. A giraffe can travel 800 feet in 20 seconds. Write a direct variation equation for the distance traveled in any time.

$$y = kx; \frac{y}{x} = k \quad \frac{800}{20} = k = 4$$

4. $y = 4x$

5. Find the 25th term of the arithmetic sequence with first term 7 and common difference -2 .

$$7 + (n-1)(-2) \quad n = 25$$

$$7 + 2n + 2 = 9 - 2n \quad 7 - 2(25) = 9 - 50$$

5. -41

6. Write an equation of the line whose slope is 2 and whose y -intercept is 9.

$$m = 2 \quad b = 9$$

6. $y = 2x + 9$

7. Write an equation of the line that passes through $(-1, -7)$ and $(1, 3)$.

$$y = mx + b \quad \begin{cases} -7 = m(-1) + b \\ 3 = m(1) + b \end{cases} \Rightarrow \begin{cases} 7 = m + b \\ 3 = m + b \end{cases} \Rightarrow \begin{cases} 3 - 7 = m - m + b - b \\ -4 = 0 + b - b \end{cases} \Rightarrow \begin{cases} b = -4 \\ m = 10 - b = 10 - (-4) = 14 \end{cases}$$

7. $y = 5x - 2$

8. Write $y - 4 = -\frac{3}{2}(x + 6)$ in standard form.

$$2y - 8 = -3(x + 6) \Rightarrow 2y - 8 = -3x - 18 \Rightarrow 3x + 2y = -10$$

8. $3x + 2y = -10$

9. Write the slope-intercept form of an equation of the line that passes through $(-2, 0)$ and is parallel to the graph of $y = -3x - 2$.

$$y = m(x - x_1) + y_1 \quad m = -3$$

$$0 = (-3)(-2) + b \Rightarrow 0 = 6 + b \Rightarrow b = -6$$

9. $y = -3x - 6$

10. The table below shows the distance driven during four different trips and the duration of each trip. Draw a scatter plot and determine what relationship exists, if any, in the data. Write an equation for a line of fit for the data.

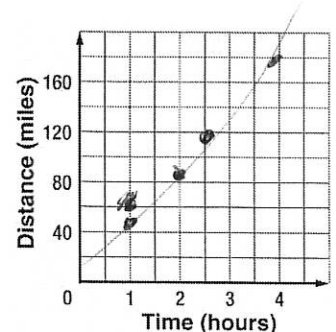
Time (hours)	1	2	2.5	4
Distance (miles)	50	85	120	180

$$y = mx + b$$

$$50 = \frac{130}{3}(1) + b$$

$$\frac{150}{3} = \frac{130}{3} + b$$

$$\frac{-150}{3} = \frac{-130}{3} + \frac{20}{3} = b$$



10. $y = \frac{130}{3}x + \frac{20}{3}$