

Algebra 2 TEST 1.2 Review

Name _____

Linear Regression.

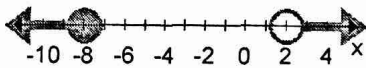
1. Given the data, find...

Median Income (thousands \$)	70	46	57	65	55	60
Median Home Price (thousands \$)	130	95	116	106	99	116

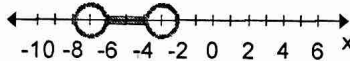
- (a) the correlation coefficient $.80$
 (b) an equation for the line of best fit $y = 1.24x + 37.51$
 (c) a prediction for the median home price of a median income of \$50,000
 (d) Predict the median income for a home with a median price of 145 (thousand).

Write a compound inequality for each graph.

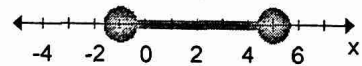
2. $x \leq -8$ OR $x \geq 2$



3. $-7 < x < -3$



4. $-1 \leq x \leq 5$



Solve each absolute value equation or inequality and check! (Remember, each problem has 2 parts.)

5. $|2x| = 4$

$x = -2$ OR $x = 2$

6. $|x - 10| = 4$

$x - 10 = -4$ OR $x - 10 = 4$
 $+10$ $+10$ $+10$ $+10$

$x = 6$ OR $x = 14$

7. $|3x| \leq 15$

$-\frac{15}{3} \leq \frac{3x}{3} \leq \frac{15}{3}$

$-5 \leq x \leq 5$

8. $|x - 6| < 4$

less than sandwich

$-4 < x - 6 < 4$
 $+6$ $+6$ $+6$

$2 < x < 10$

9. $|5x + 10| \geq 30$

$5x + 10 \leq -30$ OR $5x + 10 \geq 30$
 -10 -10 -10 -10

$5x \leq -40$ $5x \geq 20$
 $\frac{5x}{5} \leq \frac{-40}{5}$ $\frac{5x}{5} \geq \frac{20}{5}$

$x \leq -8$ OR $x \geq 4$

10. $|2x - 4| + 1 \geq 11$

$2x - 4 \leq -10$ OR $2x - 4 \geq 10$

$2x \leq -6$ $2x \geq 14$

$x \leq -3$ OR $x \geq 7$

Linear Systems.

11. Is $(3, 2)$ a solution to the system?

$\begin{cases} 4x + 5y = 2 \\ 2x + y = 4 \end{cases}$
 $4(3) + 5(2) \stackrel{?}{=} 2$
 $12 + 10 =$
 $22 \neq 2$

NO

12. Solve the system by substitution.

$\begin{cases} y = 3x - 4 \\ 2x + 3y = -1 \end{cases}$ $3(1) - 4 = -1$

$2x + 3(3x - 4) = -1$

$2x + 9x - 12 = -1$
 $+12$ $+12$

$11x = 11$

$x = 1$

$(1, -1)$

13. Solve the system by elimination.

$$\begin{cases} x-3y = -10 \\ 2x+y = 1 \end{cases}$$

$$\begin{array}{r} x-3y = -10 \\ 6x+3y = 3 \\ \hline 7x = -7 \\ x = -1 \\ \hline (-1) - 3y = -10 \\ +1 \\ \hline -3y = -9 \\ y = 3 \end{array}$$

$(-1, 3)$

14. Solve the system by elimination.

$$\begin{cases} 4x-9y = 26 \\ 4x+5y = 2 \end{cases}$$

$$\begin{array}{r} 4x-9y = 26 \\ -(4x+5y = 2) \\ \hline -14y = 24 \\ y = -6 \\ \hline 4x-5(-6) = 2 \\ 4x+30 = 2 \\ 4x = -28 \\ x = -7 \end{array}$$

$(-7, 6)$

15. Solve the system by use of a calculator.

$$\begin{cases} y+x = 5 \\ 3x-5y = -1 \end{cases}$$

$$y = mx+b \quad y = -x+5$$

$$-5y = -3x-1 \quad y = \frac{3}{5}x + \frac{1}{5}$$

$(3, 2)$

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

16. passing through $(4, 6)$ with slope $\frac{1}{2}$

$$y-6 = \frac{1}{2}(x-4)$$

$$\begin{array}{r} \frac{1}{2}x - 2 \\ +6 \\ \hline y = \frac{1}{2}x + 4 \end{array}$$

17. passing through $(2, 6)$ and $(3, 9)$

$$m = \frac{3}{1}$$

$$y-6 = 3(x-2)$$

$$\begin{array}{r} 3x - 6 \\ +6 \\ \hline y = 3x \end{array}$$

18. through $(4, -2)$ & parallel to $y = \frac{3}{2}x + 9$

$$m = \frac{3}{2}$$

$$y+2 = \frac{3}{2}(x-4)$$

$$\begin{array}{r} \frac{3}{2}x - 6 \\ -2 \\ \hline y = \frac{3}{2}x - 8 \end{array}$$

19. through $(-3, 4)$ & perpendicular to $y = \frac{3}{2}x + 9$

$$m = -\frac{2}{3}$$

$$y-4 = -\frac{2}{3}(x+3)$$

$$\begin{array}{r} -\frac{2}{3}x - 2 \\ +4 \\ \hline y = -\frac{2}{3}x + 2 \end{array}$$

20. passing through $(5, 6)$ and $(5, 9)$

$$\frac{9-6}{5-5} = \frac{3}{0} = \text{UND}$$

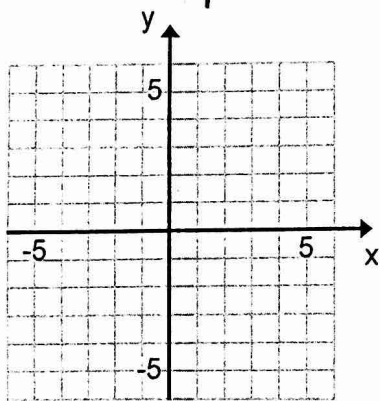
$x = 5$

21. line perpendicular to $x=5$.

$y = 5$

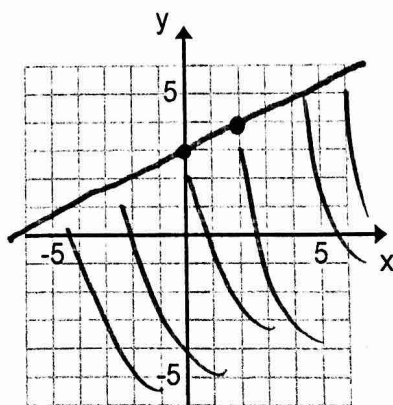
Graph the solution on a coordinate plane.

22. $y > -3$



23. $y \leq \frac{1}{2}x + 3$

Solid $y <$ below



24. $2x - 4y < -12$

Pick $(0, 0)$

$$0 < -12$$

$$-4y = -12$$

$$y = 3$$
