Algebra 2 TEST 1.2 Review Name_____

Linear Regression.

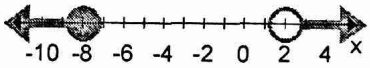
1. Given the data, find...

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

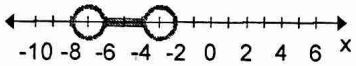
(a) the correlation coefficient .80
(b) an equation for the line of best fit $y = 1.24x + 37.51$
(c) a prediction for the median home price of a median income of $50,000
(d) Predict the median income for a home with a median price of 145 (thousand).

Write a compound inequality for each graph.

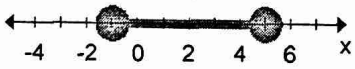
2. $x \le -8$ OR $x > 2$



3. $-7 < x < -3$



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



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 $x - 10 = 4$
$+10 \quad +10 \qquad +10 \quad +10$

$x = 6$ or $x = 14$

7. $|3x| \le 15$

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

$-5 \le x \le 5$

8. $|x - 6| < 4$ less than sandwhich

$-4 < x - 6 < 4$
$+6 \quad +6 \quad +6$

$2 < x < 10$

9. $|5x + 10| \ge 30$ greater

$5x + 10 \le -30$ OR $5x + 10 \ge 30$
$-10 \quad -10 \qquad -10 \quad -10$

$\frac{5x}{5} \le \frac{-40}{5} \qquad \frac{5x}{5} \ge \frac{20}{5}$

$x \le -8$ OR $x \ge 4$

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

$2x - 4 \le -10$ OR $2x - 4 \ge 10$

$2x \le -6 \qquad 2x \ge 14$

$x \le -3$ OR $x \ge 7$

Linear Systems.

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

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

$4(3) + 5(2) \stackrel{?}{=} 2$

$12 + 10 =$

$22 \ne 2$

NO

12. Solve the system by substitution.

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

$3(1) - 4 = -1$

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

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

$11x = 11$

$x = 1$

$(1, -1)$

13. Solve the system by elimination.

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

$x-3y=-10$

$6x+3y=3$

$7x=-7$

$x=-1$

$(-1)-3y=-10$

$+1 \quad +1$

$-3y=-9$

$y=3$

$(-1,3)$

14. Solve the system by elimination.

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

$-4y=24$

$\frac{-4y}{-4}=\frac{24}{-4}$

$y=-6$

$4x-5(-6)=2$

$4x+30=2$

$4x=-28$

$x=-7$

$(-7,6)$

15. Solve the system by use of a calculator.

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

$-x \quad -x$

$-3x \quad -3x$

$y=mx+b$

$-5y=-3x-1$

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

$y=-x+5$

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

$(3,2)$

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

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

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

$\frac{1}{2}x-2$

$+6 \quad +6$

$y=\frac{1}{2}x+4$

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

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

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

$y-6=3x-6$

$+6 \quad +6$

$y=3x$

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

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

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

$\frac{3}{2}x-6$

$-2 \quad -2$

$y=\frac{3}{2}x-8$

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

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

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

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

$+4 \quad +4$

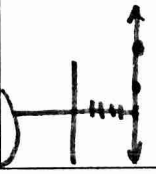
$y=-\frac{2}{3}x+2$

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

$x \quad y$

$x_1 \quad y_2$

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



$x=5$

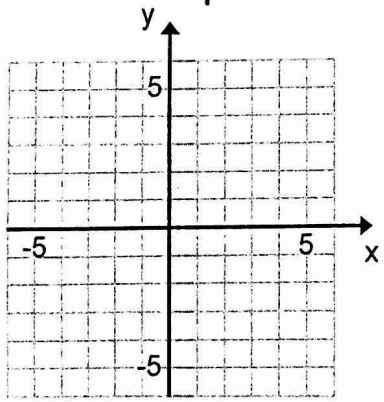
21. line perpendicular to x=5.

$y=5$

Graph the solution on a coordinate plane.

22. $y>-3$

y > above

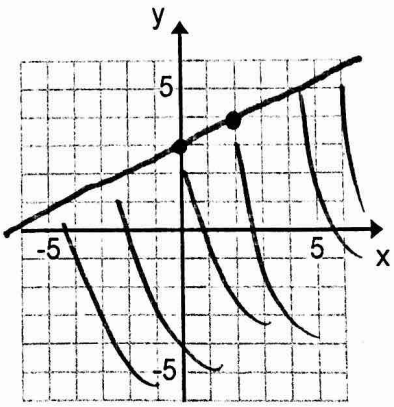


23. $y\le\frac{1}{2}x+3$

$y=\frac{1}{2}x+3$

Solid

y < below



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

$\frac{-12}{2}=-6=x$

$-4y=\frac{-12}{-4}$

$y=3$

Pick (0,0)

$0<-12$