

I. Linear Regression.

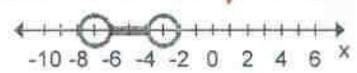
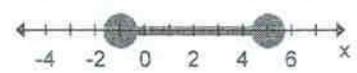
1. Given the data, find...

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

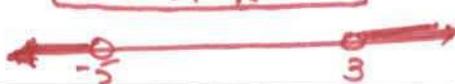
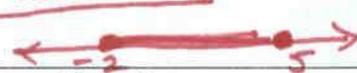
- (a) the correlation coefficient **.80**
 (b) an equation for the line of best fit **$y = 1.24x + 37.51$**
 (c) a prediction for the median home price of a median income of \$50,000

$y = 1.24(50,000) + 37.51 = \62037.51

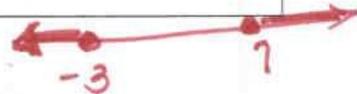
II. Write a compound inequality for each graph.

<p>2.</p>  <p>$x \leq -8$ or $x \geq 2$</p>	<p>3.</p> <p>$x > -7$ and $x < -3$</p>  <p>$-7 < x < -3$</p>	<p>4.</p> <p>$x \geq -1$ and $x \leq 5$</p>  <p>$-1 \leq x \leq 5$</p>
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III. Solve each compound inequality and graph the solution on a number line.

<p>5. $3x + 6 > 15$ or $5x + 13 < -12$</p> <p>$3x > 9$ $5x < -25$ $x > 3$ or $x < -5$</p> 	<p>6. $2(3x + 6) \leq 42$ and $5x + 15 \geq 2x + 9$</p> <p>$6x + 12 \leq 42$ $3x \geq -6$ $6x \leq 30$ $x \geq -2$ $x \leq 5$ and $x \geq -2$</p> 
<p>7. $-4x + 2 > -10$ and $5x - 12 < 8$</p> <p>$-4x > -12$ $5x < 20$ $x < 3$ and $x < 4$</p> 	<p>8. $3x - 4 \geq 8$ or $-x + 12 > 16$</p> <p>$3x \geq 12$ $-x > 4$ $x \geq 4$ $x < 4$ \mathbb{R}</p> 

IV. Solve each absolute value equation or inequality, graph on a number line and check! (Remember, each problem has 2 parts.)

<p>9. $2x = 4$</p> <p>$2x = 4$ $2x = -4$ $x = 2$ $x = -2$</p> 	<p>10. $-3 x = 18$</p> <p>$x = -6$ NOPE! \emptyset</p>	<p>11. $\frac{ x-6 }{4} = 5$</p> <p>$x-6 = 20$ $x-6 = -20$ $x = 26$ $x = -14$</p> 	<p>12. $2x-1 - 4 = 11$</p> <p>$2x-1 = 15$ $2x-1 = -15$ $2x = 16$ $2x = -14$ $x = 8$ $x = -7$</p> 
<p>13. $3x \leq 15$</p> <p>$-15 \leq 3x \leq 15$ $-5 \leq x \leq 5$</p> 	<p>14. $x-6 < 4$</p> <p>$-4 < x-6 < 4$ $2 < x < 10$</p> 	<p>15. $5x+10 \geq 30$</p> <p>$5x+10 \geq 30$ or $5x+10 \leq -30$ $5x \geq 20$ $5x \leq -40$ $x \geq 4$ $x \leq -8$</p> 	<p>16. $2x-4 + 1 \geq 11$</p> <p>$2x-4 \geq 10$ $2x-4 \geq 10$ or $2x-4 \leq -10$ $2x \geq 14$ $2x \leq -6$ $x \geq 7$ $x \leq -3$</p> 

V. Linear Systems.

17. Is $(3, 2)$ a solution to the system?
 $\begin{cases} 4x + 5y = 2 \\ 2x + y = 4 \end{cases}$
 $4(3) + 5(2) = 2$
NOPE!

18. Solve the system by substitution.
 $\begin{cases} y = 3x - 4 \\ 2x + 3y = -1 \end{cases}$
 $11x = 11$
 $x = 1$
 $2x + 3(3x - 4) = -1$
 $2x + 9x - 12 = -1$
 $11x = 11$
 $x = 1$
 $y = 3(1) - 4$
 $y = -1$
 $(1, -1)$

19. Solve the system by elimination.
 $\begin{cases} x - 3y = -10 \\ 2x + y = 1 \end{cases}$
 $-1 - 3y = -10$
 $-3y = -9$
 $y = 3$
 $x - 3(3) = -10$
 $x - 9 = -10$
 $x = -1$
 $(-1, 3)$

20. Solve the system by elimination.
 $\begin{cases} 4x - 9y = 26 \\ -4x + 5y = 2 \end{cases}$
 $4x - 9(-6) = 26$
 $4x + 54 = 26$
 $4x = -28$
 $x = -7$
 $-4y = 24$
 $y = -6$
 $(-6, -7)$

21. Solve the system by use of a calculator.
 $\begin{cases} y + x = 5 \\ 3x - 5y = -1 \end{cases}$
 $y = -x + 5$
 $-5y = -3x - 1$
 $y = \frac{3}{5}x - \frac{1}{5}$
 $(3.25, 1.75)$

VII Write the equation of the line described.

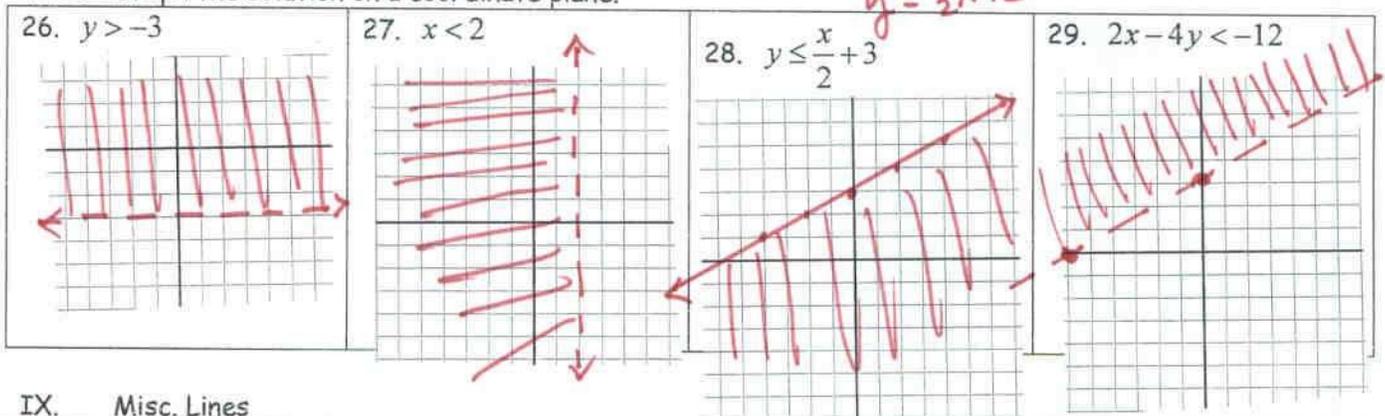
22. passing through $(4, 6)$ with slope $\frac{1}{2}$
 $y - 6 = \frac{1}{2}(x - 4)$
 $y - 6 = \frac{1}{2}x - 2$
 $y = \frac{1}{2}x + 4$

23. passing through $(2, 6)$ and $(3, 9)$ $m = \frac{9-6}{3-2} = \frac{3}{1}$
 $y - 6 = 3(x - 2)$ or $y - 9 = 3(x - 3)$
 $y - 6 = 3x - 6$
 $y = 3x$

24. through $(4, -2)$ & parallel to $y = \frac{3}{2}x + 9$ $m = \frac{3}{2}$
 $y + 2 = \frac{3}{2}(x - 4)$
 $y + 2 = \frac{3}{2}x - 6$
 $y = \frac{3}{2}x - 8$

25. through $(-3, 4)$ & perpendicular to $y = \frac{3}{2}x + 9$
 $y - 4 = -\frac{2}{3}(x + 3)$
 $y - 4 = -\frac{2}{3}x - 6$
 $y = -\frac{2}{3}x - 2$

VIII. Graph the solution on a coordinate plane.



IX. Misc. Lines

30. Find the slope of the line passing through $(-3, 5)$ and $(-1, 2)$.
 $m = \frac{5-2}{-3-(-1)} = \frac{3}{-2}$

31. Find the slope of the line

x	4	1	-2	-5
$f(x)$	4	8	12	16

$m = \frac{8-4}{1-4} = \frac{4}{-3} = -\frac{4}{3}$

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

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