

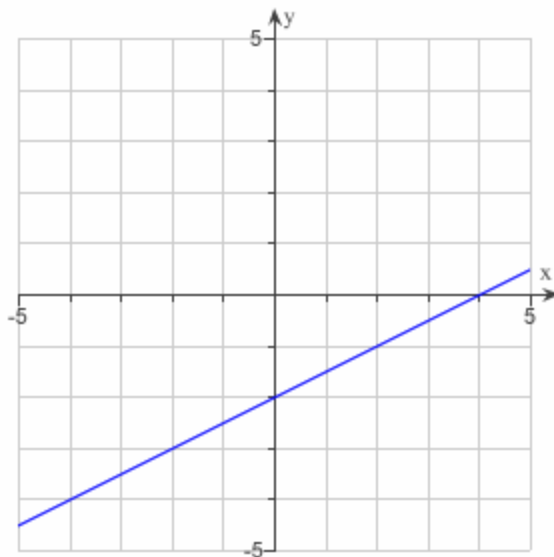
**Math 142 Week In Review**  
**Problem Set #1**  
**Instructor: Jenn Whitfield**

**Section 1.1**

1. Solve for  $x$ :  $2(x-6)+4(x+2)=8(1-x)$
2. Solve for  $t$ :  $\frac{5t}{3}-\frac{4+t}{2}=\frac{t-2}{4}+1$
3. Solve for  $m$ :  $\frac{m+3}{m}+\frac{2m-1}{4}=7$
4. Solve for  $a$ :  $A=\frac{1}{2}(a+b)h$ .
5. Solve for  $d$ :  $S=\frac{P}{1-dt}$ .
6. Solve for  $x$  and graph the solution set:  $3(2-x)-2\leq 2x-1$ .
7. Solve for  $x$  and graph the solution set:  $\frac{x+3}{8}-\frac{4+x}{2}>5-\frac{2-x}{3}$ .
8. Solve for  $t$  and graph the solution set:  $-1\leq\frac{2}{3}t+5<11$ .
9. A publisher for a promising new novel figures fixed costs (overhead, advances, promotion, copy editing, typesetting, and so on) at \$56,000, and variable costs (printing, paper, binding, shipping) at \$2.90 for each book produced. If the book is sold to distributors for \$19 each, how many must be produced and sold for the publisher to break even?

**Section 1.2**

10. Use the graph below to find the  $x$  intercept,  $y$ -intercept, and slope. Write the slope-intercept form of the equation of the line.



11. Find the value(s) of  $A$  so that the slope through the points  $(A, 15)$  and  $(2, 27)$  is 12.
12. A farmer buys a new tractor for \$156,000 and assumes that it will have a trade-in value of \$92,000 after 10 years. The farmer uses a constant rate of depreciation to determine the annual value of the tractor. Find a linear model for the depreciated value  $V$  of the tractor  $t$  years after it was purchased.
13. If an ipod costs \$400, 2000 sell. If the price increases by \$100, then 1500 sell. The producer is willing to provide 700 ipods if the price is \$580 and are willing to provide 1300 ipods when the price is \$940. Assume the supply and demand functions are linear.
  - (a) Find the supply equation.
  - (b) Find the demand equation.
  - (c) Find the equilibrium point.
14. Sketch a graph of  $f(x)=\begin{cases} 2x, & x\leq 1 \\ -3x, & x>1 \end{cases}$

15. At low altitudes the altitude of a parachutist and the time in the air are linearly related. A jump at 4,350 feet lasts 150 seconds,
- Find a linear model relating altitude  $a$  (in feet) and time in the air  $t$  (in seconds).
  - Find the rate of descent.
  - Find the speed of the parachutist at landing.

16. The table below lists average purchase prices for a house in an area.

Year	2000	2001	2002	2003	2004	2005
Average Price (in thousands)	147	152	160	164	168	179

- Compute the least squares regression line for this data.
- Use the least squares regression line you found in part (a) to predict the average price for a house in this area in 2010.
- Interpret the slope of the model.
- In what year was the average purchase price for a house in this area \$86,000?