

Closing Tue: Supp 8-9

Closing Thu: 1.1, 1.2, 1.3

Midterm 1 is next Tuesday, Oct. 25.

Entry Task (Section 1.1-1.3):

CHECK YOUR ANSWERS!!!

(a) Solve $\frac{3x-1}{2} = 10$.

(b) Simplify $0.5(x - 4) < 0.1x + 3$

(c) Solve $\frac{3x}{4} - 2 = 3 - \frac{2}{3}\left(x - \frac{1}{2}\right)$

Note: We simplify inequalities the same way we solve equations.

If you multiply or divide by a negative then you flip the inequality.

Example:

1. Simplify $-2x + 4 > 10$

More Practice.

Example:

1. Solve $\frac{10}{x-1} = 5$

2. Solve $A = P + Prt$ for t

1.2 and 1.3: Linear Functions and Apps

Problem solving strategies:

1. Read carefully:
What's given? What's wanted?
What are the units?
2. Label everything! Introduce variables for unknown values.
3. Translate to algebra/notation.
4. Solve for anything you can.
Even if you can't immediately answer the question, solve for something related.
5. Make sure your final answer actually answers the original question.

If you're ever stuck, make up numbers and work out an example!

Applied Problems from lecture pack:

1. You have \$25,000 to invest in two different funds. One investment fund has an annual yield of 8% and the other 11%. How much must you invest in each to earn \$2500 in one year?

(Just like HW 1.1/Problem 10)

(note: you must invest all the money)

2(a). You are told you have to average above 75% on the three exams to pass the class. Assume you get 65% on your first test and 78% on your second test. What does your final exam score need to be in order to pass the class?

(Similar to HW 1.1/9)

2(b) To earn a grade of 3.0 or above in a course, a student must obtain at least an 85% average on two midterms and a final exam. The final exam is worth twice as much as the midterms. The student earns a 78 and a 93 on the midterms. How high must the student's final exam grade be to ensure a 3.0 in the course?

(Similar to HW 1.1/9)

3. You sell Things. Your total cost, in **hundreds** of dollars, for producing x **hundred** Things is given by the formula

$$C(x) = 40 + 0.5x.$$

How much do you pay in FC?

What is your TC if you produce 700 Things?

How many Things are you producing if your total costs are \$12,000?

4. You sell Objects. Each object sells for \$5. Your total cost function is linear. When you produce 1 Object, total cost is \$53. When you produce 10 Objects, your total cost is \$80.

(a) Find formulas for: TR, TC, Profit

(b) What are: FC, MR, MC, MP?

(c) For what levels of production (values of x) do you make a profit?

How to find the equation of a line

Given any two points (x_1, y_1) , (x_2, y_2) :

1. Compute slope: $m = \frac{y_2 - y_1}{x_2 - x_1}$.
2. Write: $y = m(x - x_1) + y_1$

Entry Tasks:

- A) Find the equation of the line that goes through $(1, 1)$ and $(5, 7)$.
- B) Find the equation of the line that goes through $(4, 1)$ and $(6, 15)$.