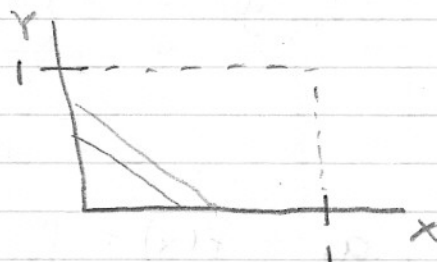


Homework 7

10.2 a. $0 \leq x \leq 2$

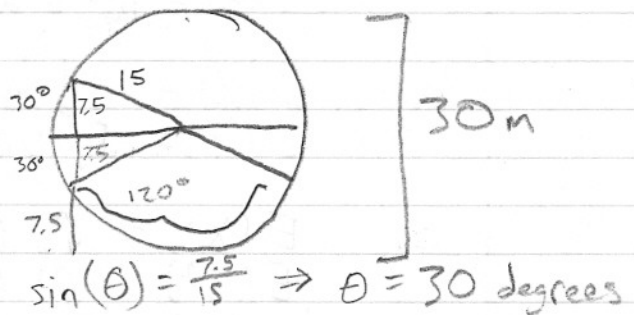
$X = x$

$Y = c - x$



10.6 $P(X \leq 22.5)$
 $= \frac{180}{360} + \frac{2 \cdot 30}{760} = \frac{2}{3}$

$P(X \leq 7.5) = \frac{120}{360} = \frac{1}{3}$



10.14 $F(x) = \frac{(x-5)^3}{12} + \frac{x-5}{6}$
 $f(x) = \frac{(x-5)^2}{4} + \frac{1}{6} = \frac{x^2 - 10x + 25}{4} + \frac{1}{6}$

$E(X) = \int_5^7 \frac{x^3}{4} - \frac{5x^2}{2} + \frac{77x}{12} = \left[\frac{x^4}{16} - \frac{5x^3}{6} + \frac{77x^2}{24} \right]_5^7$

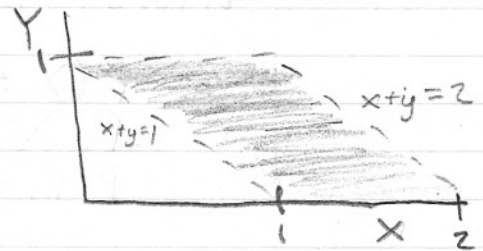
$E(X^2) = \int_5^7 \frac{x^4}{4} - \frac{5x^3}{2} + \frac{77x^2}{12}$

$\sigma = \sqrt{E(X^2) - [E(X)]^2}$

I. a. $f(y) = \int_{1-y}^{2-y} dx$, $0 \leq y \leq 2$

$f(x) = \int_{1-x}^1 dy$, $0 \leq x \leq 1$

$f(x) = \int_0^{2-x} dy$, $1 \leq x \leq 2$



b. $E(X) = \int_0^2 x f(x) = 1$
 $E(Y) = \int_0^1 y f(y) = \frac{1}{2}$