

AP STATISTICS**Homework #30 – ANSWERS ONLY**

1.
 - a) $E(X + Y) = 90$, $SD(X + Y) = 13$
 - b) $E(3Y - 7) = 23$, $SD(3Y - 7) = 15$
 - c) $E(X - Y) = 70$, $SD(X - Y) = 13$
 - d) $E(Y_1 + Y_2 + Y_3) = 30$, $SD(Y_1 + Y_2 + Y_3) = 8.66$
 - e) $E(2X + 4Y) = 200$, $SD(2X + 4Y) = 31.2410$

2.
 - a) mean = \$300, SD = \$8485.2814...
 - b) mean = \$1,500,000, SD = \$600,000

3.
 - a) $E(M + N) = \$1,100$, $SD(M + N) = \$125$
 - b) $P(M + N > \$1300) = 0.0548$ [Hint: use the normal model with the mean and SD from part (a)!]

 - c) $E(M - N) = \$100$, $SD(M - N) = \$125$
 - d) $P(N - M \geq 240) = 0.1314$

4.
 - a) $E(E - B) = 10$ minutes, $SD(E - B) = 11.180$ minutes
 - b) $P(E - B > 0) = 0.8144$

5.
 - a) mean = \$184, SD = \$2460.7316
 - b) $P(\text{profit} < -\$5000) = 0.0176$
 - c) ???