8 (#10, pg. 474)

a) $P(X+Y>0) = P(W>0)$ where $W = X+Y$

$= P\left(\frac{W-5}{3} > \frac{-5}{3}\right)$

$= P(Z > -1.67)$

$= 1 - \Phi(-1.67)$

$= 1 - .0475 = \underline{.9525}$

b) $P(X-Y<2) = P(V<2)$ where $V = X-Y$

$= P\left(\frac{V-(-3)}{3} < \frac{2+3}{3}\right)$

$= P(Z < 1.67)$

$= \Phi(1.67) = \underline{.9525}$

c) $P(3X+4Y>20) = P(U>20)$ where $U = 3X+4Y$

$= P\left(\frac{U-19}{\sqrt{130}} > \frac{20-19}{\sqrt{130}}\right)$

$= P(Z > .088) = 1 - \Phi(.09)$

$= 1 - .5359 = \underline{.4641}$