1. A) $-\frac{x_2}{x_1}$

B) $-\frac{3x_2}{x_1}$

C) $-\frac{x_2}{x_1}$

D) $-\frac{2}{3}x_1$

E) $-\frac{x_2}{x_1}$

F) $-\frac{1+x_2}{x_1}$

A,C,E have the same preferences.

2) A) L-shaped graphs with kinks along the 45-degree line $x_1 = x_2$

B) Same as part A.

C) L-shaped graphs that bend the opposite way as part A with kinks along the line $x_2 = 2x_1$.

D) This utility function represents the same preferences as $x_1x_2$ and so the indifference curves are nice convex curvy graphs that approach but never reach either the X or Y axis.



— $10 = x\,y$
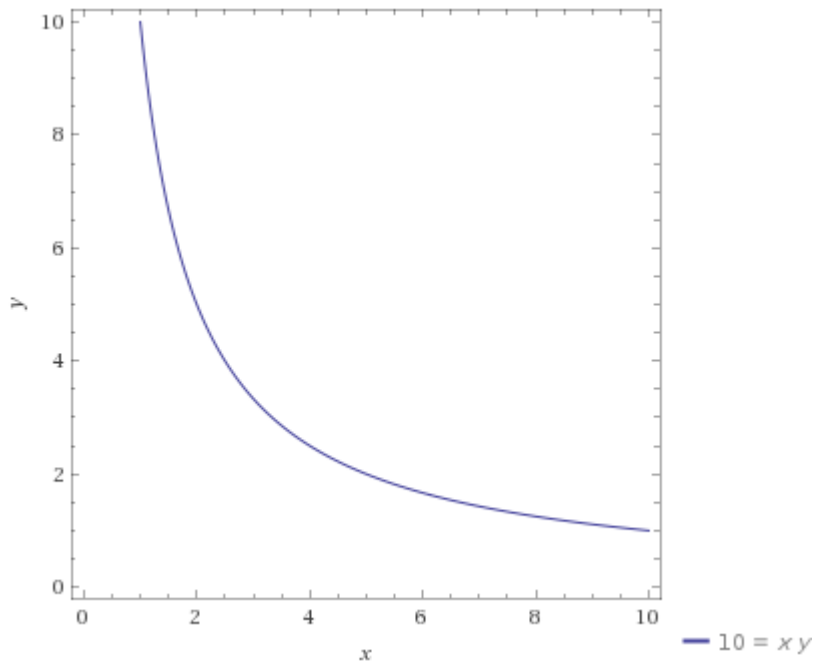
E) These indifference curves look like the ones above but are all shifted down by one. This means they are nice and curvy convex shapes but they do intercept the x-axis.

$5 = xy + x$
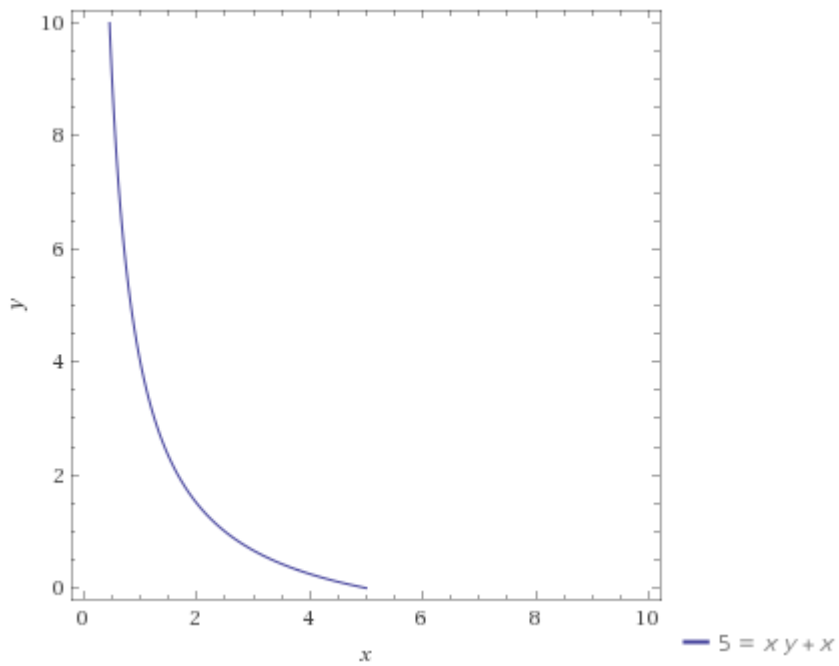
3) A) Any amount of $x_1$ and $x_2$ that cost 10.

B) $x_1 = 5, x_2 = 2.5$

C) $x_1 = 6$, $x_2 = 2$

D) $x_1 = \frac{10}{3}, x_2 = \frac{10}{3}$

E) $x_1 = 2, x_2 = 4$