Functions worksheet 3

1. Is $x - 2$ a factor of $P(x) = x^3 - 3x^2 + 5$? How many linear factors does $P(x)$ have?

2. Let $f(x) = x^4$. Show that $f(tx) = t^4 f(x)$ for any $t \neq 0$.

3. Let $f(t) = a - (t - a)^2$. Show that $f(a + b) = f(a - b)$.

4. Solve $\exp(-r(a+xb)) = c$ for x, where $a, b, c, r > 0$ and $c < 1$. Is x positive or negative?

5. Solve $\exp(-r(a+xb)) < c$ for an inequality on x. Assume $a, b, c, r > 0$ and $c < 1$.

6. Graph $y = \ln(x+5)$ over $x \in (-5, 2]$. Label the x and y intercepts.Graph $y = \ln(x+5)$ over $x \in (-5, 2]$. Label the x and y intercepts.