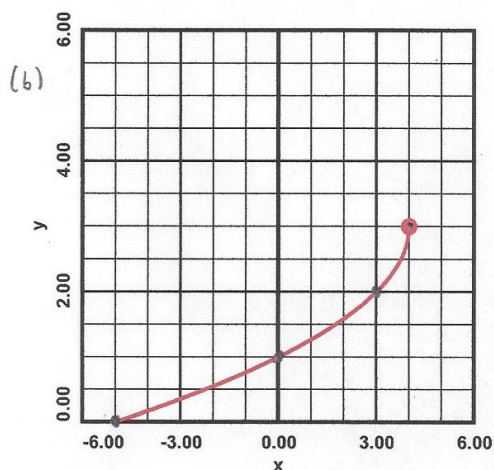


PRE-AP ALGEBRA 2

3C.1 CLASSWORK

- 1) For $y = f(x) = -\sqrt{-x}$,
- Construct a function $y = g(x)$ which is a translation, by $(4,3)$, of $y = f(x)$.
 - Graph $y = g(x)$ on the grid provided.
 - State the domain and range of $y = g(x)$.



(a) $y - y_0 = -\sqrt{-(x - x_0)}$, $y - y_0 = -\sqrt{x_0 - x}$,
 $y - 3 = -\sqrt{4 - x}$, $y = g(x) = 3 - \sqrt{4 - x}$

(c) domain: $-\infty < x \leq 4$
range: $-\infty < y \leq 3$

- 3) State the domain and range of $y = f(x) = -\sqrt{4x - 5} - 11$.

$4x - 5 = 0$, $4x = 5$, $x = \frac{5}{4} = 1.25$

x	y
1	undef.
1.25	-11 ← vertex
2	-12.73

$(1.25, -11)$
 $(2, -12.73)$

domain: $1.25 \leq x < \infty$
range: $-\infty < y \leq -11$

- 2) Let

$y = f(x) = \sqrt{x}$ and $y = g(x) = \frac{1}{3}\sqrt{x}$.

- Express $y = g(x)$ as a vertical compression of $y = f(x)$. Explain the compression in words.
- Express $y = g(x)$ as a horizontal stretch of $y = f(x)$. Explain the stretch in words.

(a) $y = g(x) = \frac{1}{3}\sqrt{x} = \frac{1}{3}f(x)$ ← which is a vertical compression, by a factor of $\frac{1}{3}$, of $y = f(x)$

(b) $y = g(x) = \frac{1}{3}\sqrt{x} = \sqrt{\frac{1}{9}x} = \sqrt{\frac{1}{9}x} = f\left(\frac{1}{9}x\right)$ ← which is a horizontal stretch, by a factor of 9, of $y = f(x)$