

$$af(x)$$

$$2f(x-h) + k$$

↑
Right h units
 $(x, y) \mapsto (x+h, y)$

$$f(x-3)$$

$$(1, 1) \mapsto (4, 1)$$

$$2f(x-h) + k$$

↑
stretch vertically

$$(x, y) \mapsto (x, 2y)$$

$$(1, 1) \mapsto (1, 2)$$

$$f(x+h)$$

Left h .

Reflections

$$-f(x)$$

Vertical Flip

$$f(-x)$$

Horizontal Flip.

S 2.3 -

$$x^2 + y^2 = r^2 \text{ is } \dots$$

circle of radius r , centered @ $(h, k) = (0, 0)$.

$$x^2 + y^2 = 4$$

$$(h, k) = (0, 0), r = 2$$

$$\Rightarrow y^2 = 4 - x^2$$

$$\Rightarrow y = \pm \sqrt{4 - x^2}$$



hash marks are for
football.

$$y = \sqrt{r^2 - x^2}$$

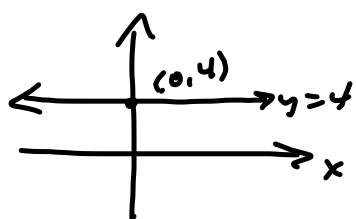
is top $\frac{1}{2}$ of

circle of radius r

S'2.1 #71

$$f(x) = 3x^2 - x$$

$$\begin{aligned}\text{Find } f(x+1) &= \underline{3(x+1)^2 - (x+1)} \\ &= 3(x^2 + 2x + 1) - x - 1 \\ &= 3x^2 + \underline{6x} + \underline{3} - \underline{x} - \underline{1} \\ &= 3x^2 + 5x + 2\end{aligned}$$



$$D = (-\infty, \infty)$$

$$R = \{4\}$$