

9. $y = x^2 - 5x + 6$ $P(4, 2)$

$$\frac{dy}{dx} = 2x - 5$$

$$= 2 \times 4 - 5$$

$$= 3$$

$$m = 3$$

10. $y = \frac{1}{3}x^3 - x^2 - 8x + 1$

$$\frac{dy}{dx} = x^2 - 2x - 8$$

at sps $\frac{dy}{dx} = 0$ $x^2 - 2x - 8 = 0$

$$(x - 4)(x + 2) = 0$$

$$x = 4 \text{ or } x = -2$$

$$y = \frac{1}{3} \times 4^3 - 4^2 - 8(4) + 1$$

$$= \frac{77}{3}$$

$$y = \frac{1}{3} \times (-2)^3 - (-2)^2 - 8(-2) + 1$$

$$= -\frac{8}{3} - 4 + 16 + 1$$

$$= -\frac{8}{3} + 12 + 1 = \frac{31}{3}$$

min at $(4, \frac{77}{3})$
max at $(-2, \frac{31}{3})$

x	-2^-	-2^-	-2^+
$\frac{dy}{dx}$	+	0	-
sign	/	-	\

$$(-3)^2 - 2(-3) - 8$$

$$= 9 + 6 - 8$$

$$= 7$$

$$(-1)^2 - 2(-1) - 8$$

$$= 1 + 2 - 8$$

$$= -5$$

x	4^-	4	4^+
$\frac{dy}{dx}$	-	0	+
sign	\	-	/

$$5^2 - 2(5) - 8$$

$$= 25 - 10 - 8$$

$$= 7$$