en $t = 1.22$

$\frac{d^2y}{dt^2} = 6(1.22) - 2$

$= 7.32 - 2$

$= 5.32$

t (1.22, 2.64) we have a minimum point

when $t = -0.55$

$\frac{d^2y}{dt^2} = 6(-0.55) - 2$

$= 3.3 - 2$

$= -5.3$

. at (-0.55, 4.78) we have a maximum point

.) $2y^2 - 5x^4 - 2 - 7y^2 = 0$

$4y\, dy/dx - 20x^3 - 21y^2\, dy/dx = 0$

$dy/dx\,(4y - 21y^2) = 20x^2$

$dy/dx = \frac{20x^3}{4y - 21y^2}$

.) $4x^2 + 2xy^3 - 5y^2 = 0$

$8x + 2y^3 + 3y^2\,(dy/dx)\,2x - 10y\,(dy/dx) = 0$

$8x + 2y^3 + 6xy^2\,(dy/dx) - 10y\,(dy/dx) = 0$

$dy/dx\,(6xy^2 - 10y) = -8x - 2y^3$

$dy/dx = \frac{-8x - 2y^3}{6xy - 10y}$

$dy/dx = \frac{2(-4x - y^3)}{2(3xy^2 - 5y)}$

i) $dy/dx = \frac{4x \cdot y^3}{3(1)y^2 - 5y}$

ii) when $x = 1$

$\frac{dy}{dx} = \frac{-4(1) - y^3}{3(1)y^2 - 5y}$

$= \frac{-4 - y^2}{3y^2 - 5y}$

when $t = 1.22$

$$\frac{d^2y}{dt^2} = 6(1.22) - 2$$
$$= 7.32 - 2$$
$$= 5.32$$

At $(1.22, 2.64)$ we have a minimum point

when $t = -0.55$

$$\frac{d^2y}{dt^2} = 6(-0.55) - 2$$
$$= 3.3 - 2$$
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∴ at $(-0.55, 4.78)$ we have a maximum point

2) $2y^2 - 5x^4 - 2 - 7y^2 = 0$

$$4y\, dy/dx - 20x^3 - 21y^2\, dy/dx = 0$$
$$dy/dx\,(4y - 21y^2) = 20x^3$$
$$dy/dx = \frac{20x^3}{4y - 21y^2}$$

3) $4x^2 + 2xy^3 - 5y^2 = 0$

$$8x + 2y^3 + 3y^2\,(dy/dx)\,2x - 10y\,(dy/dx) = 0$$
$$8x + 2y^3 + 6xy^2\,(dy/dx) - 10y\,(dy/dx) = 0$$
$$dy/dx\,(6xy^2 - 10y) = -8x - 2y^3$$
$$dy/dx = \frac{-8x - 2y^3}{6xy - 10y}$$
$$dy/dx = \frac{2(-4x - y^3)}{2(3xy^2 - 5y)}$$

i) $dy/dx = \frac{4x \cdot y^2}{3(1)y^2 - 5y}$

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$$\frac{dy}{dx} = \frac{-4(1) - y^3}{3(1)y^2 - 5y}$$
$$= \frac{-4 - y^2}{3y^2 - 5y}$$

iii) when $y = 2$

$$\frac{dy}{dx} = \frac{-4x - (2)^2}{3x(2)^2 - 5(2)}$$

$$= \frac{-4x - 8}{12x - 10}$$

$$= \frac{2(-2x - 4)}{2(6x - 5)}$$

$$= \frac{-2x - 4}{6x - 5}$$