

$$2a) f(x) = \frac{2}{3}(x-3)^2 + 1$$

$$f(2) = \frac{5}{3}$$

So no, (2,2) is not on the curve.

$$f_2: f(x) = -\frac{1}{2}(x-1)(x-6)$$

$$f(2) = 2$$

$$f_3: f(x) = 0.48(x+1.5)^2 - 4$$

$$= \frac{12}{25}(x+1.5)^2 - 4$$

$$f(2) = 1.88 \text{ no!}$$

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④ $f(x) = \frac{1}{2}(x-2)(x-5)$

range: $[-1.125, +\infty[$

$$f \uparrow [3.5, +\infty[$$

$$f \downarrow]-\infty, 3.5]$$

⑤ $f(x) = \frac{3}{8}(x-4)^2 - 6$

or

$$f(x) = \frac{3}{8}(x)(x-8)$$

or

$$f(x) = \frac{3}{8}x^2 - 3x$$

⑦ $f_1: f(x) = -4(x-2)^2 + 4$
y-int: (0, -12)

$$f_3: f(x) = 2(x+3)(x-1)$$

V (-1, -8)

$$f_5: f(x) = -4(x-1)^2 + 9$$

$$S = \left\{ \frac{1}{2}, \frac{5}{2} \right\}$$