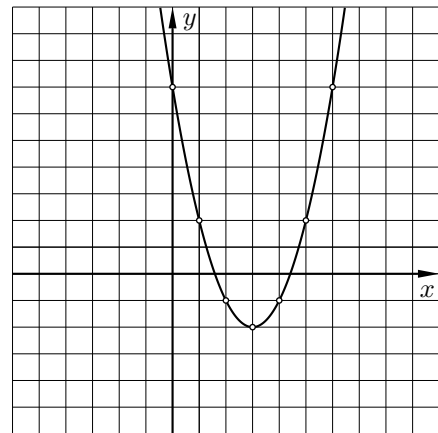
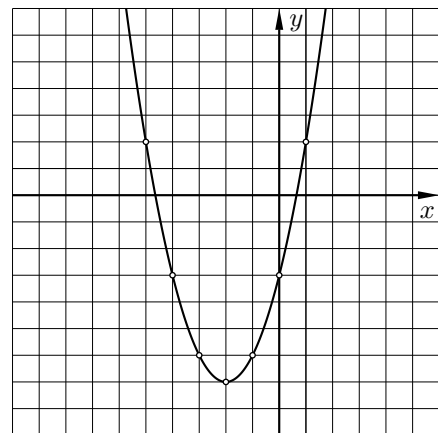


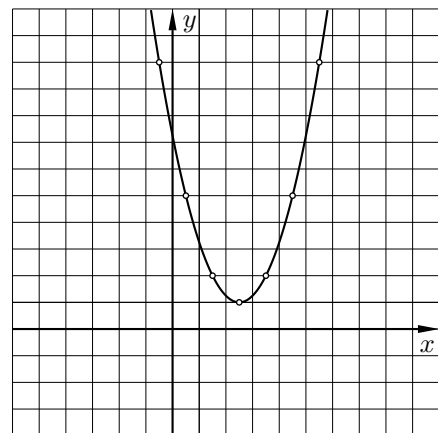
1. (a) $f(x) = x^2 - 6x + 7$
 $f(x) = x^2 - 6x + 9 - 9 + 7$
 $f(x) = (x - 3)^2 - 2 \Rightarrow S(3, -2)$



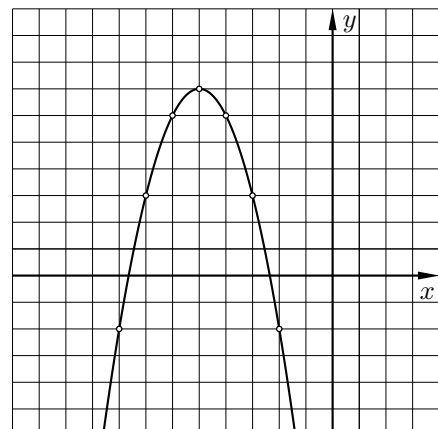
(b) $f(x) = x^2 + 4x - 3$
 $f(x) = x^2 + 4x + 4 - 4 - 3$
 $f(x) = (x + 2)^2 - 7 \Rightarrow S(-2, -7)$



(c) $f(x) = x^2 - 5x + 7.25$
 $f(x) = x^2 - 5x + 6.25 - 6.25 + 7.25$
 $f(x) = (x - 2.5)^2 + 1 \Rightarrow S(2.5, 1)$



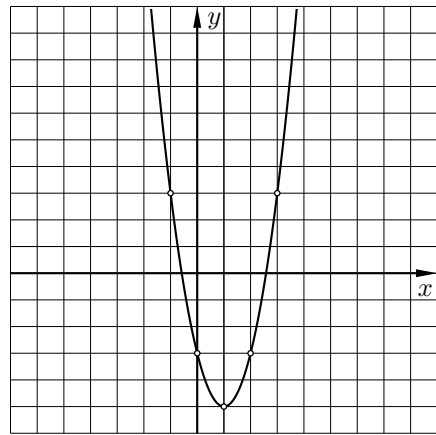
2. (a) $u = \frac{+10}{-2} = -5$
 $D = 28$
 $v = \frac{-28}{-4} = 7 \Rightarrow S(-5, 7)$



$$(b) \quad u = \frac{+4}{4} = 1$$

$$D = 16 + 24 = 40$$

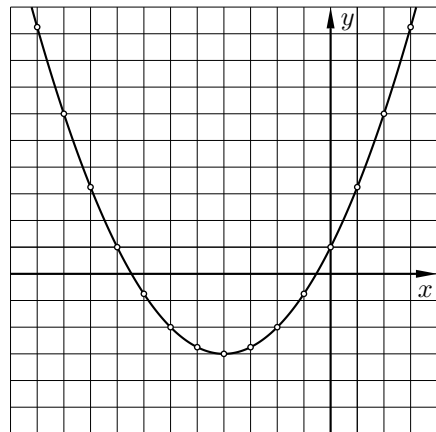
$$v = \frac{-40}{8} = -5 \quad \Rightarrow \quad S(1, -5)$$



$$(c) \quad u = \frac{-2}{0.5} = -4$$

$$D = 4 - 1 = 3$$

$$v = \frac{-3}{1} = -3 \quad \Rightarrow \quad S(-4, -3)$$



$$3. \quad y = 2(x - 3)^2 - 5$$

$$y = 2(x^2 - 6x + 9) - 5$$

$$y = 2x^2 - 12x + 18 - 5$$

$$y = 2x^2 - 12x + 13$$

$$4. \quad (a) \quad \text{Nullstellen: } 0 = 6x^2 - x - 1$$

$$D = 1 + 24 = 25$$

$$x_1 = \frac{1 + 5}{12} = \frac{1}{2}$$

$$x_2 = \frac{1 - 5}{12} = -\frac{1}{3}$$

$$\text{Ordinatenabschnitt: } y = f(0) = -1$$

$$(b) \quad \text{Nullstellen: } 0 = \frac{1}{2}x^2 + 3x + 5$$

$$D = 9 - 10 = -1 < 0 \quad \Rightarrow \quad \text{keine Nullstellen}$$

$$\text{Ordinatenabschnitt: } y = f(0) = 5$$

$$(c) \quad \text{Nullstellen: } x^2 - 3x + \frac{9}{4} = 0$$

$$D = 9 - 9 = 0$$

$$x_1 = x_2 = \frac{3 + 0}{2} = \frac{3}{2}$$

$$\text{Ordinatenabschnitt: } y = f(0) = \frac{9}{4}$$

$$\begin{aligned} \text{(d) Nullstellen: } 0 &= \frac{2}{3}x - 4 \\ 0 &= 2x - 12 \\ 6 &= 2x \\ x &= 3 \end{aligned}$$

$$\text{Ordinatenabschnitt: } y = f(0) = -4$$

$$\begin{aligned} 5. \text{ (a) } 2x^2 + 3x - 4 &= 3x + 14 \\ 2x^2 - 18 &= 0 \\ x^2 - 9 &= 0 \\ x^2 &= 9 \\ x_1 = -3 &\Rightarrow y_1 = 3 \cdot (-3) + 14 = 5 \Rightarrow P_1(-3, 5) \\ x_2 = 3 &\Rightarrow y_2 = 3 \cdot 3 + 14 = 23 \Rightarrow P_2(3, 23) \end{aligned}$$

$$\begin{aligned} \text{(b) } \frac{3}{4}x^2 - \frac{9}{2}x + 13 &= \frac{3}{2}x + 1 \quad || \cdot 4 \\ 3x^2 - 18x + 52 &= 6x + 4 \\ 3x^2 - 24x + 48 &= 0 \\ x^2 - 8x + 16 &= 0 \\ (x - 4)^2 &= 0 \\ x = 4 &\Rightarrow y = \frac{3}{2} \cdot 4 + 1 = 7 \Rightarrow P(4, 7) \end{aligned}$$

$$\begin{aligned} \text{(c) } -x^2 + 6x - 12 &= \frac{1}{2}x - 3 \quad || \cdot (-2) \\ 2x^2 - 12x + 24 &= -x + 6 \\ 2x^2 - 11x + 18 &= 0 \\ D &= 121 - 4 \cdot 2 \cdot 18 = -23 < 0 \\ \text{keine Lösung} &\Rightarrow \text{keine Schnittpunkte} \end{aligned}$$