Draw the graph of each quadratic function by finding ① the vertex, ② the y-intercept and ③ the x-intercept(s).

Ex.

$y = 2x^2 - 7x + 3$

[Sol] $y = 2\left(x^2 - \frac{7}{2}x\right) + 3 = 2\left(x - \frac{7}{4}\right)^2 - \frac{25}{8}$

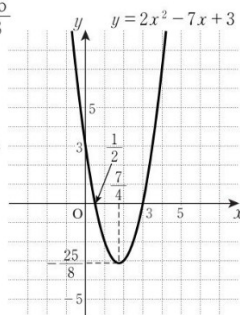① The vertex is $\left(\frac{7}{4}, -\frac{25}{8}\right)$.

② If $x = 0$, then $y = 3$.

Therefore, the y-intercept is $(0, 3)$.

③ If $y = 0$, i.e. $2x^2 - 7x + 3 = 0$,

then $x = \frac{1}{2}$, 3.

Therefore, the x-intercepts are $\left(\frac{1}{2}, 0\right)$ and $(3, 0)$.

$y = 2x^2 - 7x + 3$

$y = 2x^2 - 7x + 3$

$y = 2\left(x^2 - \frac{7}{2}x\right) + 3$

$y = 2\left(x^2 - 2 \cdot x \cdot \frac{7}{2 \cdot 2} + \left(\frac{7}{4}\right)^2\right)$

$y = 2\left(x - \frac{7}{4}\right)^2 + 3 - 2 \cdot \frac{7^2}{4^2}$

$y = 2\left(x - \frac{7}{4}\right)^2 + 3 - \frac{49}{8}$

$y = 2\left(x - \frac{7}{4}\right)^2 + \frac{24 - 49}{8}$

$y = 2\left(x - \frac{7}{4}\right)^2 - \frac{25}{8}$

1) VÉRTICE $\left(\frac{7}{4}, -\frac{25}{8}\right)$

2) TEMOS:

QUANDO $X = 0$, $y = 3$

INTERCEP. $(0, 3)$

3) QUANDO $y = 0$

$2x^2 - 7x + 3 = 0$

$\begin{array}{cc} 1 & -3 \\ 2 & -1 \end{array}$

$-1 - 6 = \boxed{7}$

$(x - 3)(2x - 1) = 0$

$x = 3, \frac{1}{2}$

INTERCEP. EM X:

$(3, 0)$ e $\left(\frac{1}{2}, 0\right)$