1st exercise:

1. $P(x) = 4x^3 - 4x^2 + x$

$= x(4x^2 - 4x + 1)$

$P(x) = x(2x-1)^2$

$P(x) = 0$

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

$x = 0 \qquad 2x-1 = 0$

$\qquad\qquad 2x = 1$

$\qquad\qquad x = \dfrac{1}{2}$

1 double root

then, $P(x) = 0$ admits 1 root as an integer which is 0.

so, ©

2. $E = \sqrt{(2-\pi)^2} - \sqrt{(2\pi-3)^2} + \sqrt{(10-3\pi)^2}$ $2 - \pi < 0$

$= -2 + \pi - (2\pi - 3) + 10 - 3\pi$ $2\pi - 3 > 0$

$= \pi - 2 - 2\pi + 3 + 10 - 3\pi$ $10 - 3\pi > 0$

$E = 11 - 4\pi$

so, (b)

3. -2 has an image 9 by f

then $\left.\begin{array}{l} x = -2 \\ y = 9 \end{array}\right\} \quad \dfrac{y}{x} = \dfrac{9}{-2}$

$a = \dfrac{y}{x} = -4.5 \qquad f: y = ax \ (linear \ function)$

$f: y = -4.5x$

the image of 3 by f is:

$y = -4.5x$

P.1.