

$$\begin{aligned}
 4\text{a)} \quad & 3x(4x-5)+3 \\
 & = 12x^2-15x+3 \\
 & \quad \text{Put } x=3 \\
 & = 12 \times 3^2 - 15 \times 3 + 3 \\
 & = 108 - 45 + 3 \\
 & = 111 - 45 \\
 & = 66
 \end{aligned}$$

$$\begin{aligned}
 & \text{Put } x = \frac{1}{2} \\
 & = 12 \times \left(\frac{1}{2}\right)^2 - 15 \times \frac{1}{2} + 3 \\
 & = \overset{3}{12} \times \frac{1}{4} - \frac{15}{2} + 3 \\
 & = 6 - \frac{15}{2} \\
 & = \frac{12-15}{2} \\
 & = -\frac{3}{2}
 \end{aligned}$$

$$\begin{aligned}
 \text{b)} \quad & a(a^2+a+1)+5 \\
 & = a^3+a^2+a+5 \\
 & \quad \text{Put } a=0 \\
 & = 0^3+0^2+0+5 \\
 & = 5
 \end{aligned}$$

$$\begin{aligned}
 & \text{Put } a=1 \\
 & = 1^3+1^2+1+5 \\
 & = 1+1+1+5 \\
 & = 8
 \end{aligned}$$

$$\begin{aligned}
 & \text{Put } a=-1 \\
 & = (-1)^3+(-1)^2+(-1)+5 \\
 & = -1+1-1+5 \\
 & = 6-2 \\
 & = 4
 \end{aligned}$$