#15

$$\begin{aligned} R(a) &= (3a+1)^2 \\ &= (3a+1)(3a+1) \\ &= 9a^2+6a+1 \end{aligned}$$

#18

$$\begin{aligned} y &= \sqrt{x}\,(x-1) \\ &= x^{\frac{1}{2}}\left(x^1-1\right) \\ &= x^{\frac{3}{2}}-x^{\frac{1}{2}} \\ &\downarrow \end{aligned}$$

#22

$y = \dfrac{\sqrt{x}+x}{x^2}$ $= \dfrac{\sqrt{x}}{x^2}+\dfrac{x}{x^2}$ $= x^{-\frac{3}{2}}+x^{-1}$ $\downarrow$	$y = \dfrac{\sqrt{x}+x}{x^2}$ $= \left(\sqrt{x}+x\right)x^{-2}$ $= \left(x^{\frac{1}{2}}+x\right)x^{-2}$ $= x^{-\frac{3}{2}}+x^{-1}$ $\downarrow$

#23

$y = \dfrac{x^2+4x+3}{\sqrt{x}}$ $= \dfrac{x^2+4x+3}{x^{\frac{1}{2}}}$ $= \left(x^2+4x+3\right)\cdot x^{-\frac{1}{2}}$ $= x^{\frac{3}{2}}+4x^{\frac{1}{2}}+3x^{-\frac{1}{2}}$ $\downarrow$	$y = \dfrac{x^2+4x+3}{\sqrt{x}}$ $= \dfrac{x^2+4x+3}{x^{\frac{1}{2}}}$ $= \dfrac{x^2}{x^{\frac{1}{2}}}+\dfrac{4x}{x^{\frac{1}{2}}}+\dfrac{3}{x^{\frac{1}{2}}}$ $= x^{\frac{3}{2}}+4x^{\frac{1}{2}}+3x^{-\frac{1}{2}}$ $\downarrow$

#24

$$g(u) = \sqrt{2} \cdot u + \sqrt{3u}$$
$$= \sqrt{2} \cdot u + \sqrt{3} \cdot \sqrt{u}$$
$$= \sqrt{2} \cdot u + \sqrt{3} \cdot u^{\frac{1}{2}}$$
$$\downarrow$$