4 Given that $\log_2 a = h$ and $\log_2 b = k$, express $\log_2 \sqrt{\frac{32a}{b^3}}$ in terms of h and k. [4]

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$\log_2 \left(\frac{32a}{b^3}\right)^{\frac{1}{2}}$ $\rightarrow$ $\frac{1}{2}\log_2\left(\frac{32a}{b^3}\right)$

$= \frac{1}{2}\left[\log_2 32a - \log_2 b^3\right]$ $\rightarrow$ $\log_2(32a) - \log_2 b^3$

$= \frac{1}{2}\left[\log_2 32 + \log_2 a - 3\log_2 b\right]$

$= \frac{1}{2}\left[\log_2 2^5 + h - 3k\right]$ $\rightarrow$ $\log_2 2$

$= 5 \times 1$

$= \frac{1}{2}\left[5 + h - 3k\right]$ Ans