

Multiply by the reciprocal of the divisor. To simplify, first factor the numerator and denominator. Then regroup common factors in the same fraction and reduce to 1.

$$\frac{6x^3}{25} \div \frac{9x^4}{20} = \frac{6x^3}{25} \cdot \frac{20}{9x^4} = \frac{2 \cdot 3 \cdot x^3}{5 \cdot 5} \cdot \frac{2 \cdot 2 \cdot 5}{3 \cdot 3 \cdot x^3 \cdot x}$$

$$= \frac{3 \cdot 5 \cdot x^3}{3 \cdot 5 \cdot x^3} \cdot \frac{2 \cdot 2 \cdot 2}{3 \cdot 5 \cdot x} = 1 \cdot \frac{8}{15x} = \frac{8}{15x}$$