

6.1.119 Find the missing factor.

$$\frac{6}{35}x^4 - \frac{1}{7}x^2 + \frac{2}{7}x = \frac{2}{7}x \cdot ?$$

$$\frac{6}{35}x^4 - \frac{1}{7}x^2 + \frac{2}{7}x = \frac{2}{7}x \cdot (\square)$$

← find 3 terms.

(Use integers or fractions for any numbers in the expression.)

$$\frac{2}{7}x \cdot (\text{1st term}) = \frac{6}{35}x^4$$

← divide both sides
by $\frac{2}{7}x = \frac{2x}{7}$

⇒ same as mult both
sides by $\frac{7}{2x} = \frac{7x^{-1}}{2}$

$$\begin{aligned} (\text{1st term}) &= \frac{\overset{3}{\cancel{6}}}{\underset{5}{\cancel{35}}}x^4 \cdot \frac{\overset{1}{\cancel{7}}}{\underset{1}{\cancel{2}}}x^{-1} \\ &= \frac{3}{5}x^3 \end{aligned}$$

$$\frac{2}{7}x \cdot (\text{2nd term}) = -\frac{1}{7}x^2$$

$$\begin{aligned} (\text{2nd term}) &= -\frac{1}{7}x^2 \cdot \frac{7x^{-1}}{2} \\ &= -\frac{1}{2}x \end{aligned}$$

$$\frac{2}{7}x \cdot (\text{3rd term}) = \frac{2}{7}x$$

$$\text{3rd term} = 1$$

solution

$$\boxed{\frac{2}{7}x \left(\frac{3}{5}x^3 - \frac{1}{2}x + 1 \right)}$$