Topic: Distributive property with fractions

Question: Use the distributive property to expand the expression.

$$\frac{2x}{yz}\left(\frac{5x}{3y}+\frac{x^2}{z}\right)$$

Answer choices:

A $\quad \dfrac{10x^2}{3y^2z}+\dfrac{2x^3}{yz^2}$

B $\quad \dfrac{10x}{3y^2}+\dfrac{2x^3}{yz^2}$

C $\quad \dfrac{10x^2}{3yz}+\dfrac{2x^3}{yz^2}$

D $\quad \dfrac{10x^2}{3y^2}+\dfrac{2x^2}{yz^2}$

Solution: A

Multiply each term in the parentheses by $2x/yz$.

$$\frac{2x}{yz}\left(\frac{5x}{3y}+\frac{x^2}{z}\right)$$

$$\left(\frac{2x}{yz}\cdot\frac{5x}{3y}\right)+\left(\frac{2x}{yz}\cdot\frac{x^2}{z}\right)$$

$$\frac{10x^2}{3y^2z}+\frac{2x^3}{yz^2}$$

Topic: Distributive property with fractions

Question: Use the distributive property to expand this expression.

$$\left(abx - \frac{b^2 x^2}{a^3} \right) \frac{bx^2}{a}$$

Answer choices:

A $\qquad bx^2 - \dfrac{b^3 x^4}{a^3}$

B $\qquad b^2 x^2 + \dfrac{b^3 x^4}{a^4}$

C $\qquad b^2 x^3 - \dfrac{b^3 x^4}{a^4}$

D $\qquad bx^3 - \dfrac{b^2 x^2}{a^4}$

Solution: C

Rewrite abx as $abx/1$.

$$\left(abx - \frac{b^2x^2}{a^3} \right) \frac{bx^2}{a}$$

$$\left(\frac{abx}{1} - \frac{b^2x^2}{a^3} \right) \frac{bx^2}{a}$$

Multiply each term in the parentheses by bx^2/a.

$$\left(\frac{bx^2}{a} \cdot \frac{abx}{1} \right) - \left(\frac{bx^2}{a} \cdot \frac{b^2x^2}{a^3} \right)$$

$$\frac{ab^2x^3}{a} - \frac{b^3x^4}{a^4}$$

Cancel the a in the top and bottom of the first term.

$$b^2x^3 - \frac{b^3x^4}{a^4}$$

Topic: Distributive property with fractions

Question: Use the distributive property to expand this expression.

$$\frac{pb}{t^2}\left(\frac{2s}{t} - \frac{pj}{3t^2} + r\right)$$

Answer choices:

A $\qquad \dfrac{2pbs}{t^3} - \dfrac{p^2bj}{3t^4} - \dfrac{pbr}{t^2}$

B $\qquad \dfrac{2pbs}{t^3} - \dfrac{p^2bj}{3t^4} + \dfrac{pbr}{t^2}$

C $\qquad \dfrac{2pbs}{t^3} - \dfrac{2pbj}{3t^4} + \dfrac{pbr}{t^2}$

D $\qquad \dfrac{2pbs}{t^3} - \dfrac{2pbj}{3t^3} + \dfrac{pbr}{t^2}$

Solution: B

To simplify

$$\frac{pb}{t^2}\left(\frac{2s}{t} - \frac{pj}{3t^2} + r\right)$$

Rewrite r as $r/1$.

$$\frac{pb}{t^2}\left(\frac{2s}{t} - \frac{pj}{3t^2} + \frac{r}{1}\right)$$

Multiply the three terms in parentheses by pb/t^2.

$$\frac{pb}{t^2} \cdot \frac{2s}{t} - \frac{pb}{t^2} \cdot \frac{pj}{3t^2} + \frac{pb}{t^2} \cdot \frac{r}{1}$$

$$\frac{2pbs}{t^3} - \frac{p^2bj}{3t^4} + \frac{pbr}{t^2}$$