Operations with rational expressions

$$\frac{2k}{3k+12} + \frac{k+7}{k^2+4k}$$

Which expression is equivalent to the above sum?

A $\quad \dfrac{2k^2 + 3k + 21}{3k^2 + 12k}$

B $\quad \dfrac{2k^2 + 14k}{3k^3 + 24k^2 + 48k}$

C $\quad \dfrac{3k + 7}{k^2 + 7k + 12}$

D $\quad \dfrac{3k + 7}{k + 4}$

$$\frac{49m^4 n - 21m^6 n^2}{7m^2 n^4}$$

Which expression is equivalent to the above for all $m > 1$ and $n > 1$?

A $\quad 7m^2 n^4 - 3m^4 n^2$

B $\quad 7m^2 n^3 - 3m^4 n^2$

C $\quad \dfrac{7m^2 - 3m^3}{n^2}$

D $\quad \dfrac{7m^2 - 3m^4 n}{n^3}$

Operations with rational expressions

$$\frac{4k^2 - 12k + 9}{2k^2 + 19k - 33} \cdot \frac{k^2 + 8k - 33}{k^2 - 3k}$$

Which expression is equivalent to the above product for $k \geq 33$?

(A) $\dfrac{2k - 3}{k}$

(B) $\dfrac{8(4k^2 + 13)}{(2k + 19)}$

(C) $\dfrac{(2k^2 + 9)(2k^2 - 33)}{4k^4 - 57k^2 - 33}$

(D) $\dfrac{2k^4 + 20k^3 - 73k^2 + 53k - 297}{k(k^3 + 13k^2 - 30k + 11)}$

$$\frac{5m^2 + 7m}{2m - 9} - \frac{2m}{2m - 9}$$

Which expression is equivalent to the above difference?

(A) $\dfrac{3m^2 + 7m}{2m - 9}$

(B) $\dfrac{5m^2 + 5m}{2m - 9}$

(C) $\dfrac{5m + 9m}{2m - 9}$

(D) $\dfrac{5m^2 + 7m - 1}{2m - 9}$

Operations with rational expressions

$$\frac{5x}{6y} \cdot \frac{3}{10y}$$

Which expression is equivalent to the above product for all $y > 0$?

A $\dfrac{x}{2}$

B $\dfrac{25x}{9}$

C $\dfrac{x}{2y^2}$

D $\dfrac{x}{4y^2}$