

6.Review.4 Factor completely.

3

$$30x^2 + 33x^3 - 18x^4$$

Select the correct choice below and fill in any answer boxes within your choice.

☒ A. $30x^2 + 33x^3 - 18x^4 = \boxed{-3x^2(2x-5)(3x+2)}$
(Factor completely.)

☐ B. The polynomial is prime.

YOU ANSWERED: A, $3x^2(x+15)(x-4)$

step 1: Arrange in standard form — highest exp first.

$$-18x^4 + 33x^3 + 30x^2$$

step 2: Factor out GCF (with negative, since leading coefficient is negative).

$$-3x^2(6x^2 - 11x - 10)$$

step 3: Factor trinomial. Leading coefficient $\neq 1$, so this is double X, not single.

Rewrite middle term and factor by grouping

$$\underline{6x^2 - 15x + 4x - 10}$$

$$3x(2x-5) + 2(2x-5)$$

$$(2x-5)(3x+2)$$

$$\begin{array}{cc} 6 & (-10) \\ -15 & +4 \\ \hline & -11 \end{array}$$

$$\begin{array}{l} -6 \times 10 \\ -5 \times 12 \\ -4 \times 15 \end{array}$$

step 4: Recopy answer with GCF:

$$\boxed{-3x^2(2x-5)(3x+2)}$$