

Accuplacer Study Modules

Topic: Divide Polynomials

1. Divide $x^2 + 2x - 8$ by $(x-2)$.

$$\begin{array}{r} x+4 \\ x-2 \overline{) x^2 + 2x - 8} \\ \underline{-x^2 - 2x} \\ 4x - 8 \\ \underline{-4x - 8} \\ 0 \end{array}$$

Answer: $(x+4)$
 $(x-2)(x+4)$

check!
 $x^2 + 4x - 2x - 8$
 $x^2 - 2x - 8$ ✓

2. A rectangle has an area of $2x^2 - 5x - 1$ and a length of $(x-3)$. What is the width of the rectangle?

$$\begin{array}{r} 2x+1 \\ x-3 \overline{) 2x^2 - 5x - 1} \\ \underline{-2x^2 + 6x} \\ x - 1 \\ \underline{-x - 3} \\ 2 \end{array}$$

$A = lw$
 $w = \frac{A}{l}$

2 ← remainder over $(x-3)$

Answer: $2x+1 + \frac{2}{x-3}$

3. Divide $x^6 + 2x^4 + 6x - 9$ by $(x^3 + 3)$

$$\begin{array}{r} x^3 \\ x^3+3 \overline{) x^6 + 0x^5 + 2x^4 + 0x^3 + 0x^2 + 6x - 9} \\ \underline{-x^6} \\ 2x^4 - 3x^3 + 0x^2 + 6x - 9 \end{array}$$

$x^3 + 2x - 3$

$$\begin{array}{r} x^3+3 \overline{) x^6 + 0x^5 + 2x^4 + 0x^3 + 0x^2 + 6x - 9} \\ \underline{-x^6} \\ 2x^4 - 3x^3 + 0x^2 + 6x - 9 \\ \underline{-2x^4} \\ -3x^3 - 9 \\ \underline{-3x^3} \\ 0 \end{array}$$

Answer: $x^3 + 2x - 3$

4. A rectangle has an area of $x^2 + 2x - 15$ and a width of $(x+5)$. What is the length of the rectangle?

$$\begin{array}{r} x \\ x+5 \overline{) x^2 + 2x - 15} \\ \underline{-x^2 + 5x} \\ -3x - 15 \end{array}$$

$A = lw$
 $l = \frac{A}{w}$

$$\begin{array}{r} x-3 \\ x+5 \overline{) x^2 + 2x - 15} \\ \underline{-x^2 + 5x} \\ -3x - 15 \\ \underline{-3x - 15} \\ 0 \end{array}$$

$(x+5)(x-3)$ ← check!

$x^2 - 3x + 5x - 15$
 $x^2 + 2x - 15$ ✓

Answer: $(x-3)$