# ANSWER PRESENTATION TOOL



**2.**

$$x - 5\overline{)3x^2 - 14x - 5}$$

$$\begin{array}{r} 3x + 1 \\ 3x^2 - 15x \\ \hline x - 5 \\ x - 5 \\ \hline 0 \end{array}$$

$$(3x^2 - 14x - 5) \div (x - 5) = 3x + 1$$

**4.**

$$x^2 + 1\overline{)7x^3 + x^2 + x + 0}$$

$$\begin{array}{r} 7x + 1 \\ 7x^3 + 0x + 7x \\ \hline x^2 - 6x + 0 \\ x^2 + 0x + 1 \\ \hline -6x - 1 \end{array}$$

$$(7x^3 + x^2 + x) \div (x^2 + 1) = 7x + 1 + \frac{-6x - 1}{x^2 + 1}$$

**6.**

$$\begin{array}{r} 5 \\ 2x^3 - 4x^2 - x + 2 \overline{)\,10x^3 + 5x^2 + 0x - 1} \\ \underline{10x^3 - 20x^2 - 5x + 10} \\ 25x^2 + 5x - 11 \end{array}$$

$$\frac{10x^3 + 5x^2 + 0x - 1}{2x^3 - 4x^2 - x + 2} = 5 + \frac{25x^2 + 5x - 11}{2x^3 - 4x^2 - x + 2}$$

**8.**

$$\begin{array}{r} 4x^2 + 12x + 44 \\ x^2 - 3x - 2 \overline{)\,4x^4 + 0x^3 + 0x^2 + 5x - 4} \\ \underline{4x^4 - 12x^3 - 8x^2} \\ 12x^3 + 8x^2 + 5x \\ \underline{12x^3 - 36x^2 - 24x} \\ 44x^2 + 29x - 4 \\ \underline{44x^2 - 132x - 88} \\ 161x + 84 \end{array}$$

$$(4x^4 + 5x - 4) \div (x^2 - 3x - 2)$$

$$= 4x^2 + 12x + 44 + \frac{161x + 84}{x^2 - 3x - 2}$$

**10.** Use synthetic division. Because the divisor is $x - 2$, $k = 2$.

$$\begin{array}{r|rrr} 2 & 4 & -13 & -5 \\ & & 8 & -10 \\ \hline & 4 & -5 & -15 \end{array}$$

$$\frac{4x^2 - 13x - 5}{x - 2} = 4x - 5 - \frac{15}{x - 2}$$

**12.**

| | | | |
|---|---|---|---|
| $-4$ | 1 | 0 | 9 |
| | | $-4$ | 16 |
| | 1 | $-4$ | 25 |

$$(x^2 + 9) \div (x + 4) = x - 4 + \frac{25}{x + 4}$$

**14.** Use synthetic division. Because the divisor is $x - 1$, $k = 1$.

| | | | | |
|---|---|---|---|---|
| 1 | 3 | $-5$ | 0 | $-2$ |
| | | 3 | $-2$ | $-2$ |
| | 3 | $-2$ | $-2$ | $-4$ |

$$\frac{3x^3 - 5x^2 - 2}{x - 1} = 3x^2 - 2x - 2 - \frac{4}{x - 1}$$

**16.** Use synthetic division. Because the divisor is $x + 5 = x - (-5)$, $k = -5$.

| | | | | | |
|---|---|---|---|---|---|
| $-5$ | 1 | 4 | 0 | 16 | $-35$ |
| | | $-5$ | 5 | $-25$ | 45 |
| | 1 | $-1$ | 5 | $-9$ | 10 |

$$\frac{x^4 + 4x^3 + 16x - 35}{x + 5} = x^3 - x^2 + 5x - 9 + \frac{10}{x + 5}$$

**18.** A; $(2)^2 - (2) - 3 = -1$ so the remainder must be $-1$.

**20.** B; $(2)^2 + (2) + 3 = 9$ so the remainder must be 9.

**22.** The coefficient of 0 for the quadratic term of the dividend was not included.

| | | | | |
|---|---|---|---|---|
| 2 | 1 | 0 | −5 | 3 |
| | | 2 | 4 | −2 |
| | 1 | 2 | −1 | 1 |

$$\frac{x^3 - 5x + 3}{x - 2} = x^2 + 2x - 1 + \frac{1}{x - 2}$$

**24.**

| | | | |
|---|---|---|---|
| 3 | 3 | 2 | −20 |
| | | 9 | 33 |
| | 3 | 11 | 13 |

The remainder is 13. So, you can conclude from the Remainder Theorem that $f(3) = 13$.

**26.**

| | | | | |
|---|---|---|---|---|
| −4 | 1 | 1 | −3 | 9 |
| | | −4 | 12 | 36 |
| | 1 | −3 | 9 | −27 |

The remainder is $-27$. So, you can conclude from the Remainder Theorem that $f(-4) = -27$.

**28.**

| | | | | |
|---|---|---|---|---|
| 10 | 1 | 0 | −9 | −7 |
| | | 10 | 100 | 910 |
| | 1 | 10 | 91 | 903 |

The remainder is 903. So, you can conclude from the Remainder Theorem that $f(10) = 903$.

**30.**

$$\begin{array}{r|rrrrr} 5 & -1 & -1 & 0 & 0 & -2 \\ & & -5 & -30 & -150 & -750 \\ \hline & -1 & -6 & -30 & -150 & -752 \end{array}$$

The remainder is $-752$. So, you can conclude from the Remainder Theorem that $f(5) = -752$.