

Unit 1 (5.2) Divide Using Long or Tabular Division PRACTICE Worksheet

The following problems WILL have remainders. Verify you are correct by using the remainder theorem.

1. $x^2 + 9x - 7 \div x - 3$

$$x + 12 + \frac{29}{x - 3}$$

2. $2x^3 + 7x^2 - 18x - 22 \div x + 4$

$$2x^2 - x - 14 + \frac{34}{x + 4}$$

3. $\frac{3x^3 - 5x^2 + 10x - 3}{3x + 1}$

$$x^2 - 2x + 4 + \frac{-7}{3x + 1}$$

4. $2x^3 - 9x^2 + 15 \div 2x - 5$

$$x^2 - 2x - 5 + \frac{-10}{2x - 5}$$

5. $4x^4 + 3x^3 + 2x + 1 \cdot (x^2 + x + 2)^{-1}$

$$4x^2 - x - 7 + \frac{11x + 15}{x^2 + x + 2}$$

g problems WILL NOT have remainders.

1. $\frac{2x^3+3x^2-8x-12}{2x+3}$

$$x^2+0x-4$$

$$x^2-4$$

2. $x^3-2x^2-75 \div x-5$

$$x^2+3x+15$$

3. $x^4+4x^2-45 \div x^2+9$

$$x^2+0x-5$$

$$x^2-5$$

4. $x^3-27 \cdot (x-3)^{-1}$

$$x^2+3x+9$$

5. $2x^4+5x^3+11x^2+35x-21 \div 2x-1$

$$x^3+3x^2+7x+21$$

Divide by using long or tabular division.

- If your answer has a remainder, check your answer by using the remainder theorem.
- OR
- If your answer does not have a remainder, solve to find the roots by factoring or using quadratic formula.

1. $x^3 + 7x^2 + 14x + 3 \div x + 2$

$$x^2 + 5x + 4 + \frac{-5}{x+2}$$

2. $\frac{5x^4 + 2x^3 - 6x^2 + 2x + 4}{x^2 - 1}$

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

3. $2x^3 - 3x^2 - 11x + 6 \cdot (x + 2)^{-1}$

$$2x^2 - 7x + 3$$

4. $6x^4 - 7x^3 - 32x^2 + 171x - 210 \div x^2 - 3x + 6$

$$6x^2 + 11x - 35$$

5. $\frac{x^3 - 2x^2 + 6x - 6}{x - 3}$

$$x^2 + x + 9 + \frac{21}{x-3}$$

6. $x^3 - 5x^2 + 8x + 4 \div x - 1$

$$x^2 - 4x + 4 + \frac{8}{x-1}$$

7. $7x^3 - 8x^2 - 13x + 2 \div 7x - 1$

$$x^2 - x - 2$$

8. $27x^3 + 9x^2 - 3x - 10 \div 3x - 2$

$$9x^2 + 9x + 5$$

9. $x^4 - 9 \cdot (x^2 + 3)^{-1}$

$$x^2 - 3$$

10. $x^6 + 2x^5 - 5x^4 + 6x^3 - 28x^2 - 8x + 32 \div x^2 + 4$

$$x^4 + 2x^3 - 9x^2 - 2x + 8$$