



Algebraic Long Division



Simplify the following expressions by long division:

1. $(x^3 + 6x^2 + 11x + 6) \div (x + 3)$
2. $(x^3 + 10x^2 + 31x + 30) \div (x + 5)$
3. $(2x^3 + 9x^2 + 10x + 3) \div (2x + 1)$
4. $(6x^3 + 13x^2 + 9x + 2) \div (3x + 2)$
5. $(x^3 - 2x^2 - 5x + 6) \div (x - 1)$
6. $(x^3 + 5x^2 - 2x - 24) \div (x - 2)$
7. $(x^3 - 19x - 30) \div (x + 2)$
8. $(6x^3 - 13x^2 + 4) \div (2x + 1)$
9. $(x^3 - 27) \div (x - 3)$
10. $(8x^3 + 1) \div (2x + 1)$
11. An expression for the area of a rectangular lawn is given by:

$$(2x^3 - 5x^2 + 1) \text{ units}^2$$

If the expression for the length of the lawn is $(2x - 1)$ units, find an expression for the width of the lawn in terms of x .

12. A rectangular shaped swimming pool has a length of $(3x + 2)$ units and a width of $(x + 1)$ units.
 - i. Find an expression for the area of the floor of the swimming pool, in terms of x
 - ii. If the expression for the volume of water in the swimming pool is:

$$(3x^3 + 2x^2 - 3x - 2) \text{ units}^3,$$

find an expression which describes the height of water in the pool, in terms of x .

