

Expanding Three or More Brackets

1. Expand and simplify the following:
 - (a) $(x + 1)(x + 2)(x + 3)$
 - (b) $(x + 3)^3$
 - (c) $(x - 2)(x - 3)(x - 4)$
 - (d) $x(x - 2)(x + 2)$
 - (e) $(2 - x)(3 - x)(4 - x)$
 - (f) $(y + 1)(4 - y)(3 + y)$
 - (g) $(a + b)(b + c)(a + c)$
2. The base and height of a rectangle is $x + 3$ and $3x - 2$.
 - (a) Find an expression for the perimeter of the rectangle.
 - (b) Find an expression for the area of the rectangle.
3. The length, width and height of a cuboid are $x + 1$, $2x - 2$ and $10 - x$.
 - (a) Find an expression for the volume of the cuboid. Expand and simplify your answer.
 - (b) Find an expression for the surface area of the cuboid. Expand and simplify your answer.
4. Find the area and circumference of a circle with radius $x + 2$. Expand and simplify your answer.