

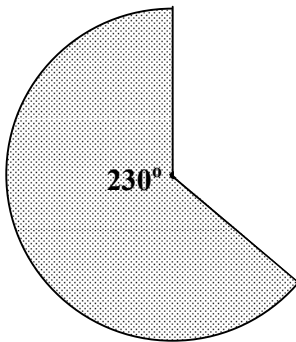
N5 Expressions & Formulae Extended Practice Test 2

Q1. Factorise fully

(a) $3x^2 + 12x - 63$

(b) $3c^2 \div 7c \div 6$

Q2. This clown's hat is made from a sector of a circle with diameter 48cm.



If the angle at the centre of the sector is 230° , calculate the area of card needed to make the hat.

Q3. Remove the brackets and tidy up terms

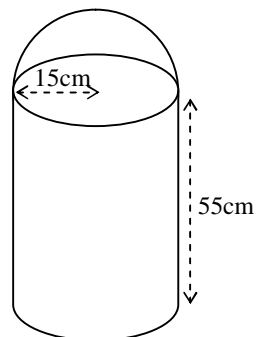
(a) $6(4x \div 5) + 3(2x + 3)$

(b) $2x(x^2 \div 5x) \div 4(x^2 - 2)$

Q4. A waste bin is in the shape of a cylinder with a hemisphere on top. The radius of the bin is 15cm and the height of the cylindrical part is 55cm.



Given that 1cm^3 is equivalent to 1ml and that there are 1000ml in 1 litre, find the capacity of the bin. [Answer to the nearest litre]



Volume of cylinder = r^2h

Volume of sphere = $\frac{4}{3} r^3$

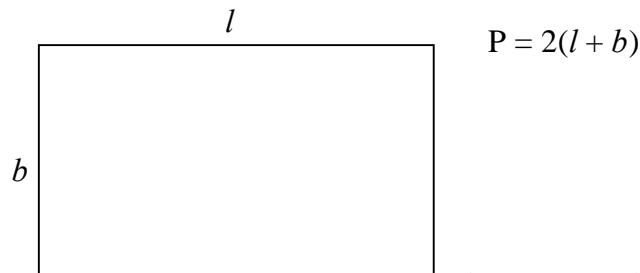
Q5. Simplify the following fraction $\frac{x^2 - 3x - 4}{1 - x^2}$

Q6. Simplify $6\sqrt{2} - \sqrt{50} + \sqrt{3}$

Q7. Express as a single fraction in its simplest form $\frac{a}{3x} \div \frac{5}{x^2}$

Q8. Simplify $\frac{3x^4 \times 4x^{\frac{3}{2}}}{2x^{-2}}$

Q9. The formula for the perimeter of this rectangle is:



Find the perimeter of the rectangle when $l = \frac{1}{x^2}$ and $b = \frac{5x}{4}$.

Q10. Express $x^2 + 7x + 12$ in the form $(x + p)^2 + q$

Q11. An art exhibition lasts for 31 days. In total 5.39×10^{13} people visit it. On average how many people visited per day? Write your answer in scientific notation and round to 3 significant figures.

Q12. Express $\frac{6}{2 - \sqrt{3}}$ as a fraction with a rational denominator.

End of question paper