

N5 Expressions & Formulae Extended Practice Test 1

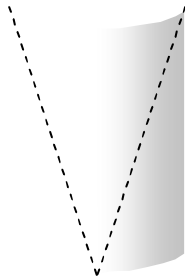
Q1. Multiply out the brackets:

a. $3ab(2a + 5b)$

b. $(6p + 5)(2p + 3)$

c. $(x + 5)(x^2 + 7x + 9)$

Q2.



A glass vase is in the shape of a cylinder of diameter 15 cm and height 30 cm, with a conical section removed.

Calculate the volume of glass remaining.

(Volume of cone = $\frac{1}{3} \pi r^2 h$, volume of cylinder = $\pi r^2 h$)

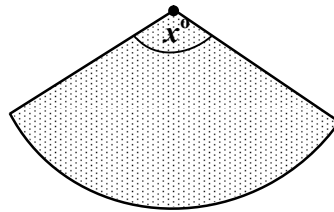
Q3. Factorise :

a. $12a^2c + 18abc$

b. $49x^2 - 4y^2$

c. $16p^2 + 14p - 15$

Q4. A sensor on a security system covers a horizontal area in the shape of a sector of a circle of radius 10 m.



The area covered by the sensor is 96 square metres.

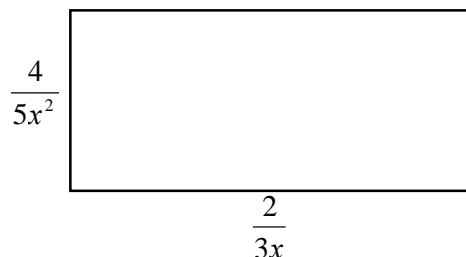
Find the angle x° at the centre of the sector.

Q5. (a) Simplify the following fraction $\frac{4a^2 - 121}{2a^2 - 3a - 44}$

(b) Express as a single fraction in its simplest form $\frac{3x}{2a^2} \div \frac{6x}{a}$

Q6. Simplify $(x^{\frac{3}{2}})^6 + (3x^6)^{\frac{1}{2}}$

Q7. The diagram shows a rectangle. Find an expression for the perimeter of the rectangle and express it as a single fraction.



Q8. Express $x^2 + 6x + 10$ in the form $(x + p)^2 + q$

Q9. A spaceship travels at an average speed of 3.2×10^7 km/h. Calculate how far it travels in 300 days. Write your answer in scientific notation.

Q10. Express $\frac{7}{\sqrt{2}}$ as a fraction with a rational denominator.

End of question paper