

Example of a math test:

1. Determine the equation of a line through point A(-1, 3) that is parallel to the line

$$2x - y + 3 = 0 .$$

2. Simplify: $\frac{x+1}{x^2-9} - \frac{x}{x^2+3x} =$

3. Solve the system:

$$x - \frac{x+y}{3} = 0$$
$$\frac{y-x}{3} + \frac{x}{6} = 1$$

4. Simplify: $\left(\frac{4x^{-2}}{y^{-3}}\right)^3 : \left(\frac{y^{-3}}{2x^{-2}}\right)^{-2}$

5. The length of the minor arc AB of a circle, centre O, is 2π cm and the length of the major arc is 22π cm. Find the radius of the circle and the acute angle AOB.

6. The length of a rectangle exceeds the width by 2 cm. If the diagonal is 10 cm long, find the width of the rectangle.

7. Graph the function $f(x) = x^2 - x - 6$, and show clearly its vertex and the axes of symmetry.

8. The surface area of the base of a cylinder is 8π cm². The radius of the base is the same as the height of the cylinder. Find the volume of the cylinder.

9. Solve: $\log_3(5^x + 2) = 3$.

10. An isosceles triangle has sides of length 8 cm, 8 cm and 6 cm. Find the angle between the two equal sides.