

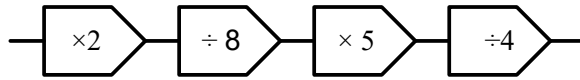


1
$$\frac{16! \div \sqrt{16}}{16^2 \times 14!} + \frac{1}{4^3} =$$

2
$$\frac{\sqrt[3]{729} \times \sqrt[2]{729} \times 729}{729^2} =$$

3
$$729^{-\frac{1}{3}} \div 4^2 \times 256^{-\frac{1}{2}} \div 9^2 =$$

4 Find the lowest natural number that will give an integer output for the following function machine.



5 Sam was born on the Friday 9th August 2002. On what day of the week was his 18th birthday?

6 How many days are there between 28th February 1999 and the 30th November 2024?

7 What is the value of a?
$$\frac{\sqrt[3]{a} \times \sqrt[2]{a} \times a}{a^2} = \frac{1}{7}$$

8 Solve the Sudoku below.

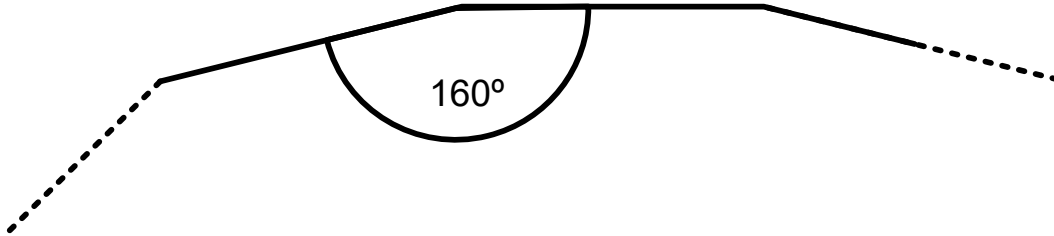
1		7		9			8	6
3	5			8	6			7
		8	5		7		3	
	4		9		2		5	
9	1			3		6		
		2				1		
	7			6				5
5					9	8		
	8			5				2



9
$$\frac{\sqrt[4]{x} \times \sqrt[3]{x} \times \sqrt[2]{x} \times x}{x^2} = 3$$

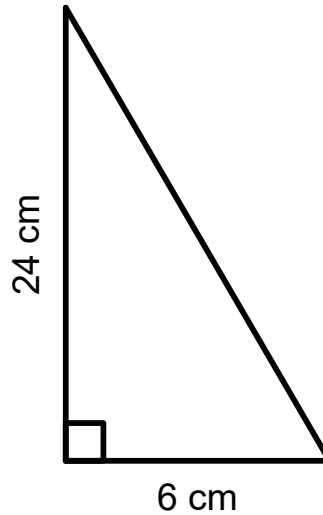
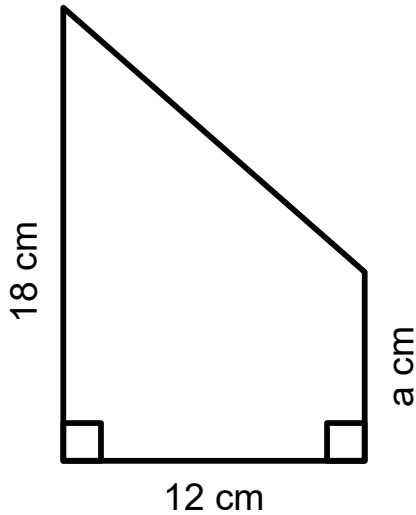
Find the value of x .

10 The diagram below shows part of a regular polygon.



Name the shape.

11 The two shapes below have the same area. Calculate the length of side a .



12
$$\sum_{n=1}^{100} x_n = \frac{n(n+1)}{2} = \frac{100(101)}{2} = \frac{10100}{2} = 5050$$

is the sum of all the integers between 1 and 100.

Is there a relationship between the sums of successive thousands?

If so, what is it?