

1. Simplify

(a)  $\frac{3}{x} \times \frac{2x^2}{y}$

(b)  $\frac{y^3}{4} \times \frac{3w}{y}$

(c)  $\frac{x^3}{2} \div \frac{3}{x}$

2. Simplify

(a)  $\frac{x-2}{x^2-3x+2}$

(b)  $\frac{y^2+9y+20}{2y+8}$

(c)  $\frac{r^2-3r-4}{3r-12}$

(d)  $\frac{x^2-9}{x^2+2x-3}$

(e)  $\frac{x^2+x}{x^2+2x+1}$

(f)  $\frac{x-x^2}{x^2-x^3}$

3. Simplify

(a)  $\frac{y+3^4}{y+3^2}$

(b)  $\frac{y+1}{y+1^2}$

(c)  $\frac{2a+3^3}{2a+3}$

4. Simplify

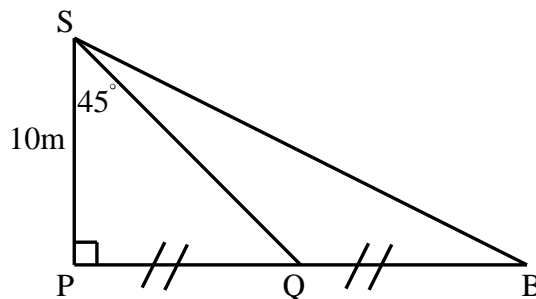
(a)  $\frac{1}{k} + \frac{1}{k+1}$

(b)  $\frac{3}{y} - \frac{2}{y^2}$

(c)  $\frac{1}{x-1} + \frac{1}{x}$

5. (a) Express  $2x^2+8x+19$  in the form  $a(x+b)^2+c$ .(b) Express  $3x^2-12x+37$  in the form  $a(x+b)^2+c$ .

6.

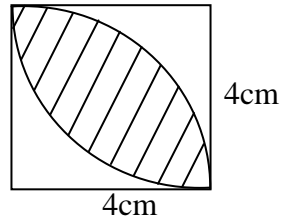


The length of PS is 10m.

Calculate the size of angle QSB.

7. (a) Expand and simplify  $(2x-3)(x+1)^2$ .(b) Expand and simplify  $(2x+3)(x-4) - (x)(x-2)$ .

8. The diagram shows a square of side 4cm which has 2 arcs of radius 4cm drawn from opposite corners.  
Calculate the shaded area.



9. Fifty people took part in a Health Promotion Campaign. They were asked whether or not they smoked cigarettes. The following table summarises their replies.

	Smoker	Non-Smoker
Male	3	21
Female	8	18

What is the probability that a person chosen at random from this group is:

- a) Male;
  - b) A smoker;
  - c) A female who smokes?
10. The length of the edge of a cube is  $2x$  centimeters.  
The expression for the volume in cubic centimeters is equal to the expression for the area in square centimeters.  
Form an equation and find the value of  $x$ .
11. An aquarium contains 280 tropical fish of various kinds.  
If 60 more clownfish are added to the aquarium the proportion of clownfish would be doubled.  
How many clownfish are in the aquarium?