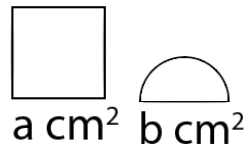


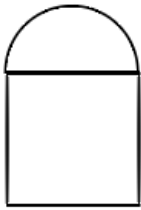
Diagrams with Algebra

Q1. The areas of the two shapes are $a \text{ cm}^2$ and $b \text{ cm}^2$.

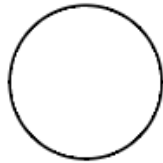


Write an expression for the area of the following shapes in terms of a and b .

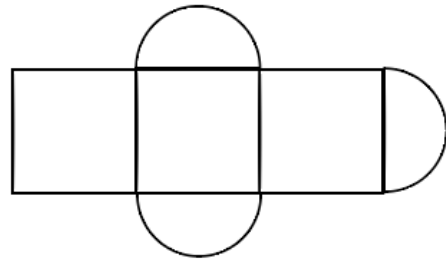
a)



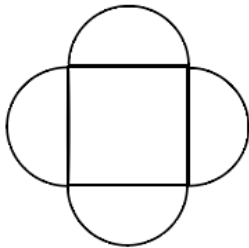
b)



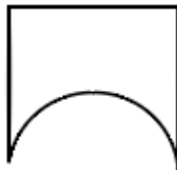
c)



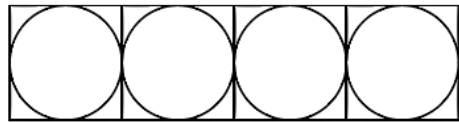
d)



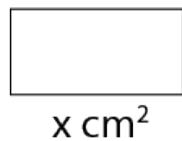
e)



f)



Q2. Use the shapes below to create the composite diagrams with the following areas.



a) $2x$

b) $2y$

c) $x + y$

d) $2x + 2y$

e) $x - y$

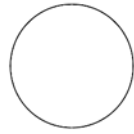
f) $x + 2y$

g) $2x - y$

h) $2(x - y)$

Diagrams with Algebra

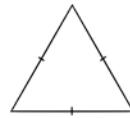
The areas of these three shapes are $f \text{ cm}^2$, $g \text{ cm}^2$ and $h \text{ cm}^2$. The perimeters of the three shapes are $x \text{ cm}$, $y \text{ cm}$ and $z \text{ cm}$ as shown.



Area = $f \text{ cm}^2$
Per. = $x \text{ cm}$



Area = $g \text{ cm}^2$
Per. = $y \text{ cm}$



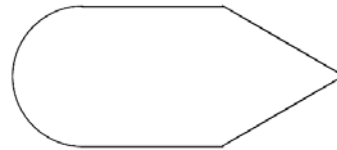
Area = $h \text{ cm}^2$
Per. = $z \text{ cm}$

a) Draw various composite shapes made up from the two.

b) Write an expression in terms of f and g for the area of the composite shapes.

c) Write an expression in terms of x , y and z for the perimeter of the composite shapes.

An example is shown:



Area = $\frac{1}{2}f + g + h \text{ cm}^2$
Per. = $\frac{1}{2}x + \frac{1}{2}y + \frac{2}{3}z \text{ cm}$

Q1.

a) $a + b$

b) $2b$

c) $3a + 3b / 3(a + b)$

d) $a + 4b$

e) $a - b$

f) $4a - 8b / 4(a - 2b)$

Q2. Student's own work.