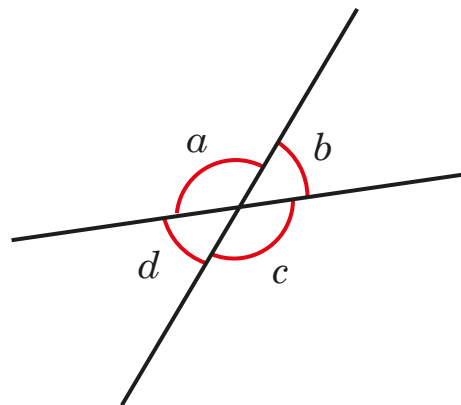# Vertically opposite angles

1 The diagram shows four angles formed by two straight lines.

a) Measure the sizes of the angles.

$a =$ ☐ $b =$ ☐ $c =$ ☐ $d =$ ☐

b) What is the total of angles a and b?   ☐

Explain why.

_____

Do any other pairs of angles have this same total?

c) Angles a and c are vertically opposite angles.
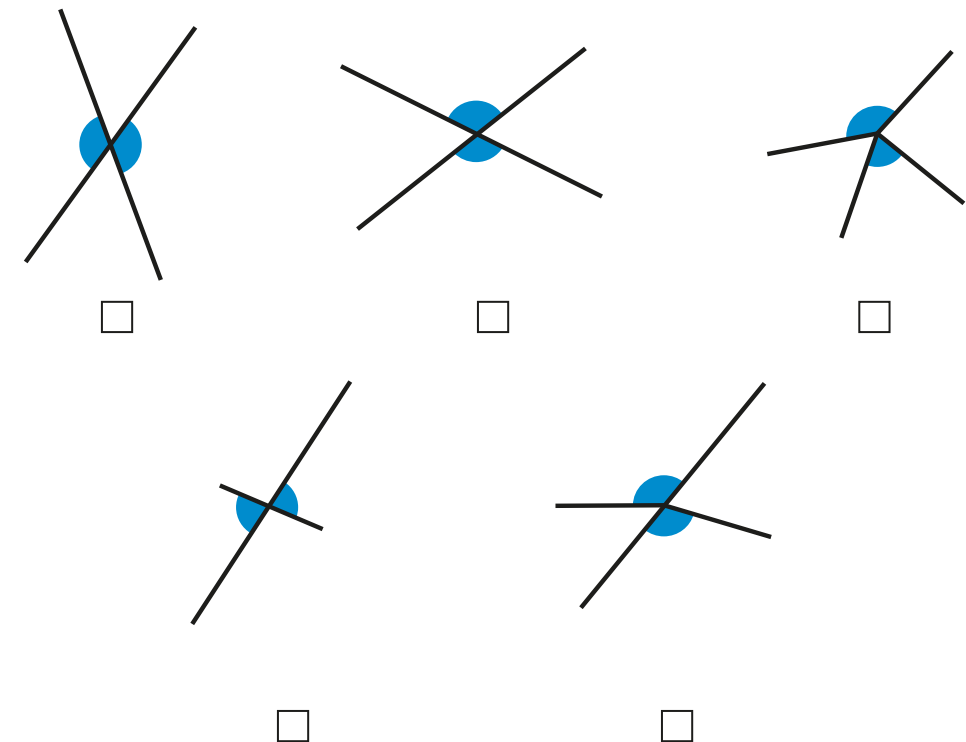
What do you notice about the sizes of angles a and c?

_____

d) Angles b and d are also vertically opposite angles.

What do you notice about the sizes of angles b and d?

_____

e) Complete the sentence.

Vertically opposite angles _____

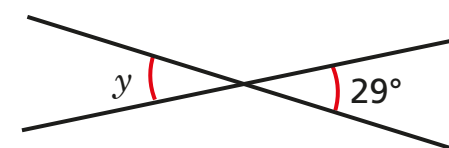**2** Tick the pairs of angles that are vertically opposite.

☐   ☐   ☐

☐   ☐

Compare answers with a partner.

3 Work out the sizes of the unknown angles.
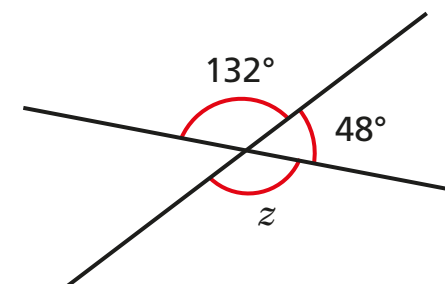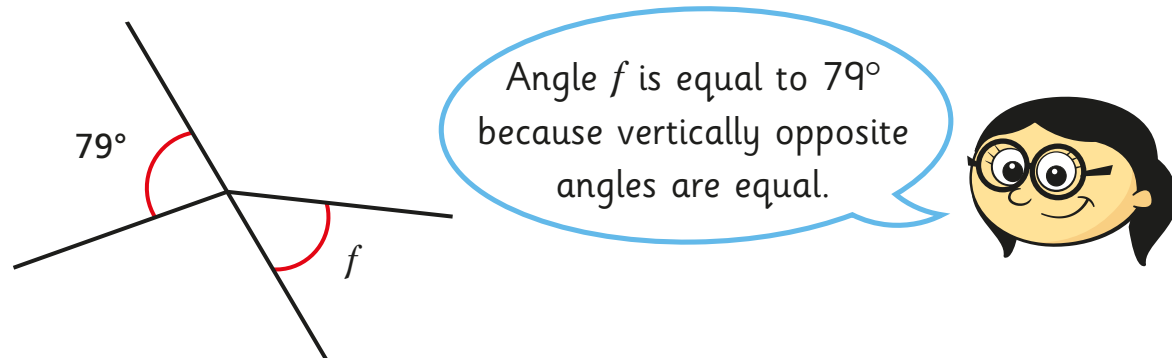
Give reasons for your answers.

a)

$y =$ ☐ because _____

_____

b)
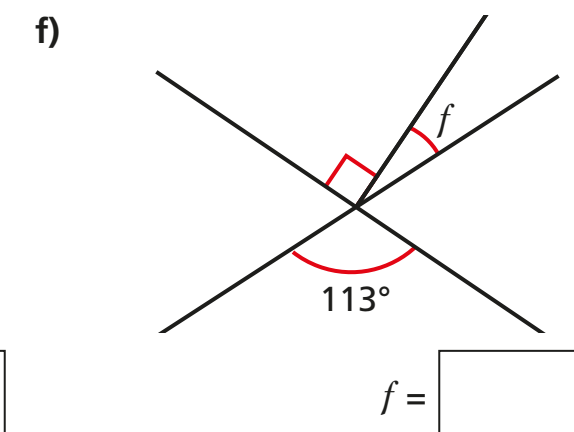

$z =$ ☐ because _____

_____

4 Annie is working out the size of angle f.

79°

f

Angle f is equal to 79° because vertically opposite angles are equal.

Do you agree with Annie? _____

Explain your answer.

_____

_____

5 Work out the unknown angles.

a)

133°

a

$a = $ [ ]

b)

b

73°

$b = $ [ ]

c)

c

52°

$c = $ [ ]

d)

81°   65°

d

$d = $ [ ]

e)

81° e

$e = $ [ ]

f)

f

113°

$f = $ [ ]
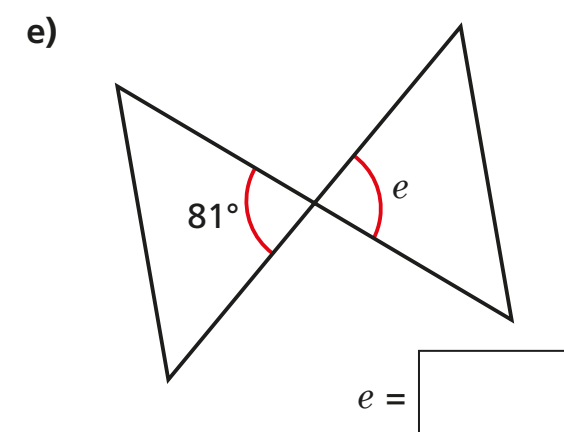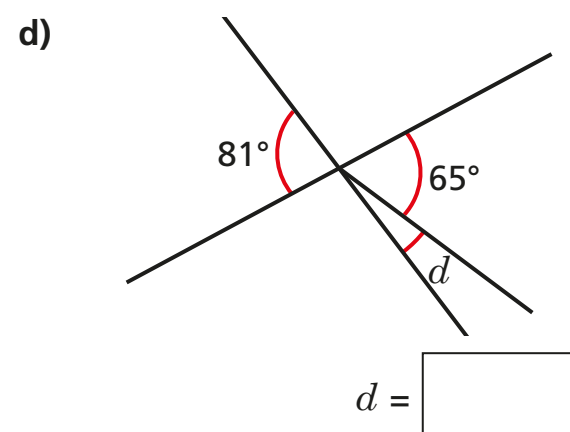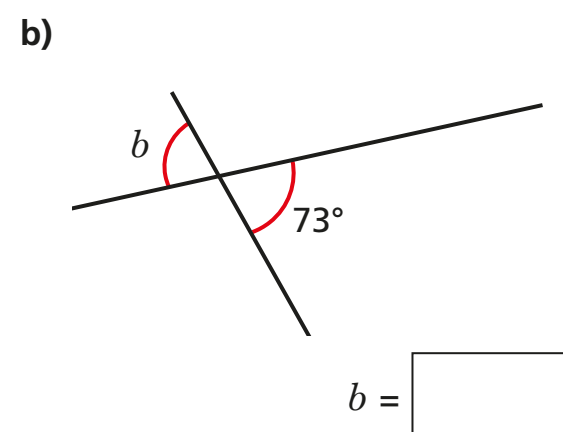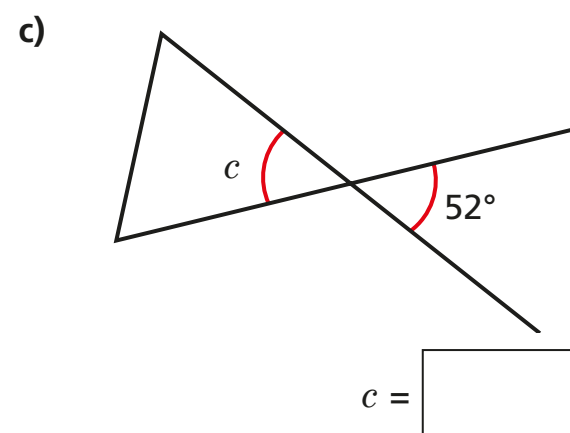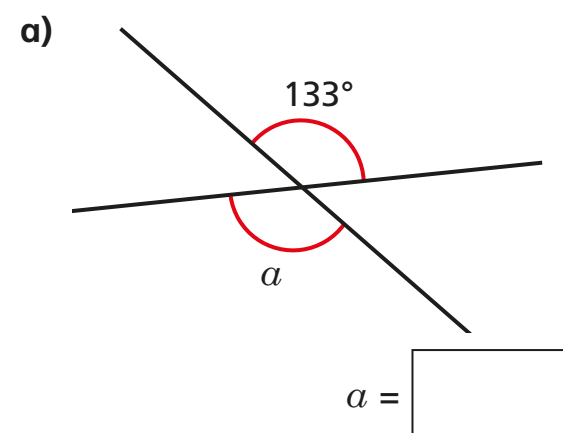
Talk about your reasons with a partner.

6 Angle b is three times the size of angle a.

a

b

80°
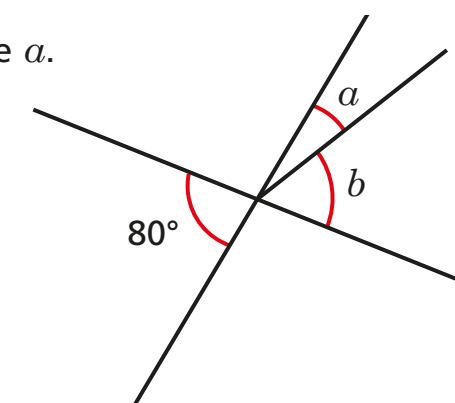
Work out the sizes of angles a and b.

$a = $ [ ] $b = $ [ ]

7 Angle f is one quarter of the size of angle g.

Angle f is 28°.

g

x f

y

139°
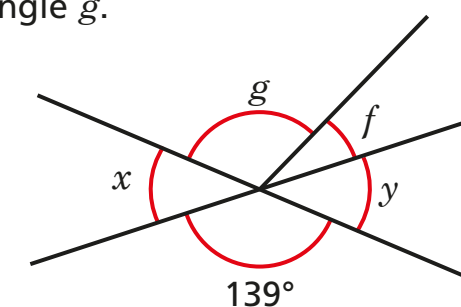
Are angles x and y vertically opposite? _____

Explain your answer.

_____

_____