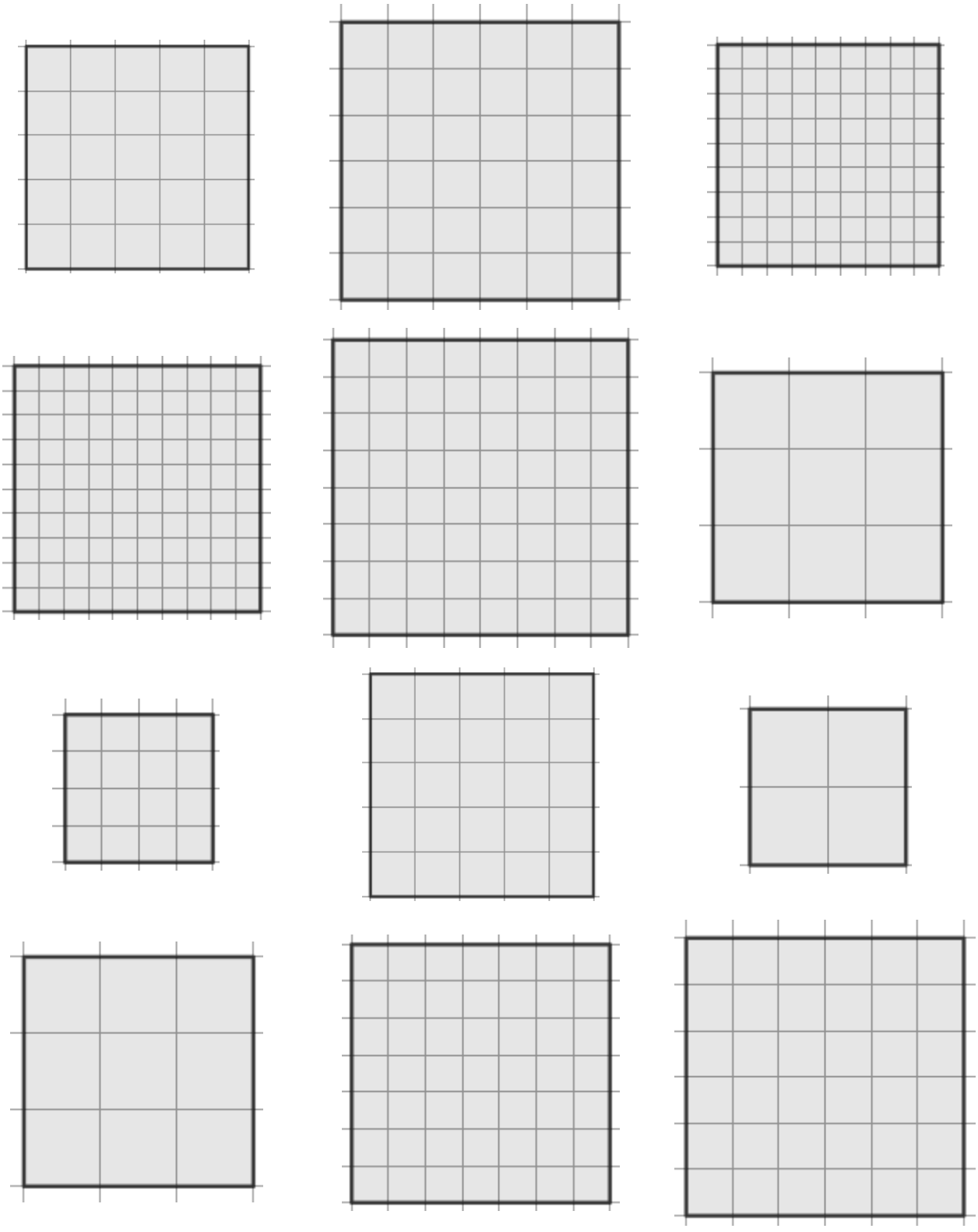
G9 U3 Numeracy #1:

On each square, write its side length and its area



Write down the perfect squares:

(a) 5^2 (b) 3^2 (c) 8^2 (d) 9^2 (e) 2^2 (f) 10^2 (g) 7^2

(h) 1^2 (i) 4^2 (j) 6^2 (k) 11^2 (l) 20^2 (m) 12^2 (n) 50^2

Use a non calculator multiplication method to calculate:

(a) 14^2 (c) 21^2 (e) 35^2 (g) 28^2

The number 85 is not a perfect square. What two consecutive integers does $\sqrt{85}$ lie between? How do you know?

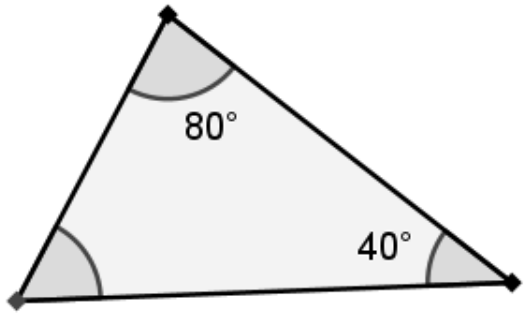
Consecutive means 'next to'

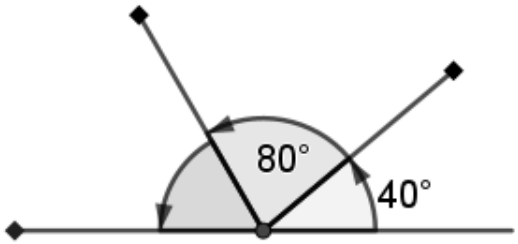
Integer means 'whole number'

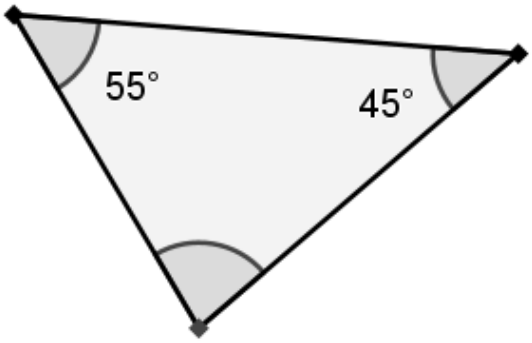
Two consecutive integers example: 3 and 4.

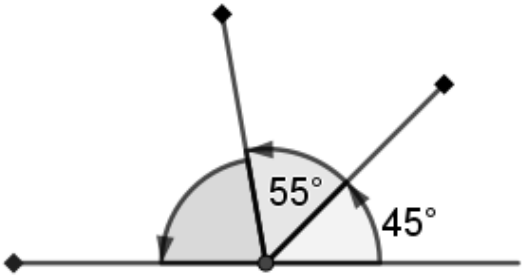
G9 U2 Numeracy #2:

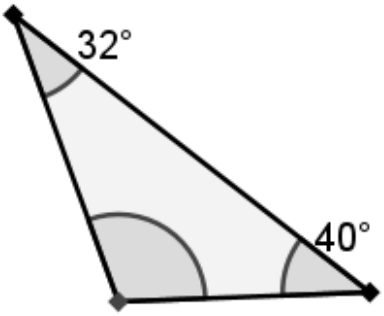
Use the property that angles in a triangle/angles on a straight line add to 180 degrees to calculate the missing angles on these diagrams:

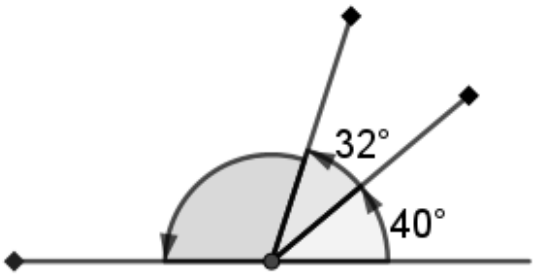


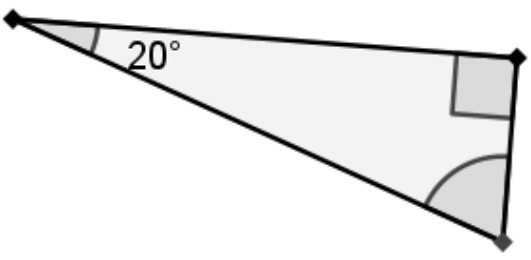


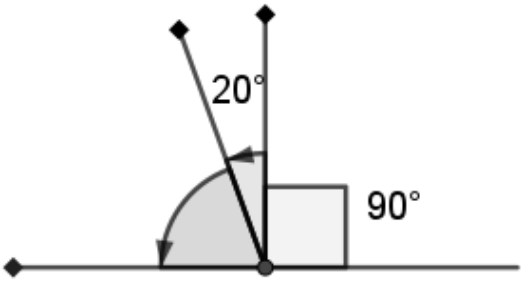






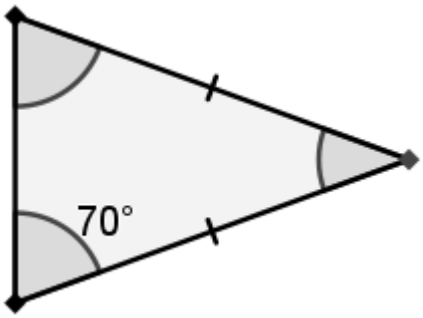


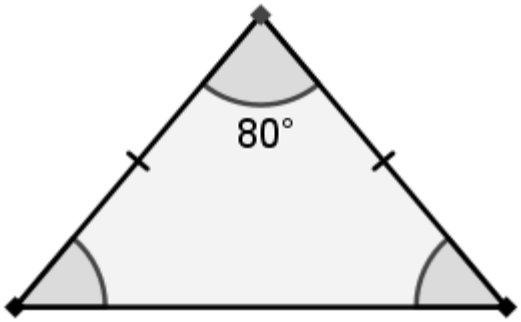


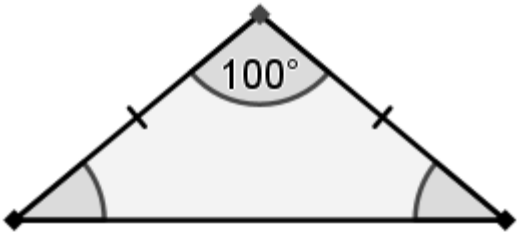


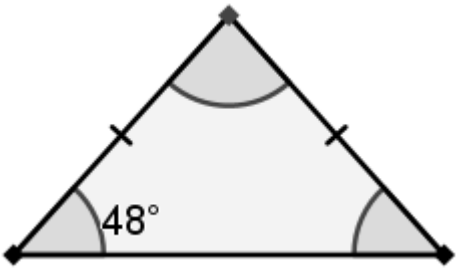
Calculate the missing angle in these isosceles triangles.

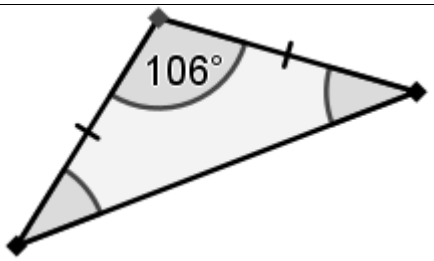


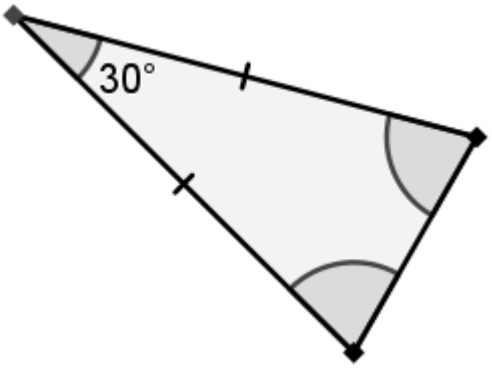


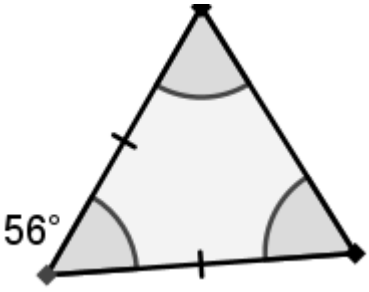


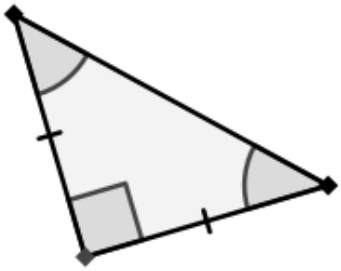


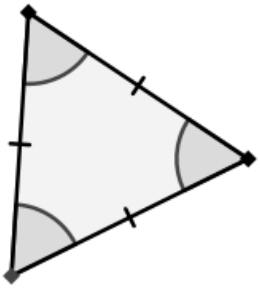






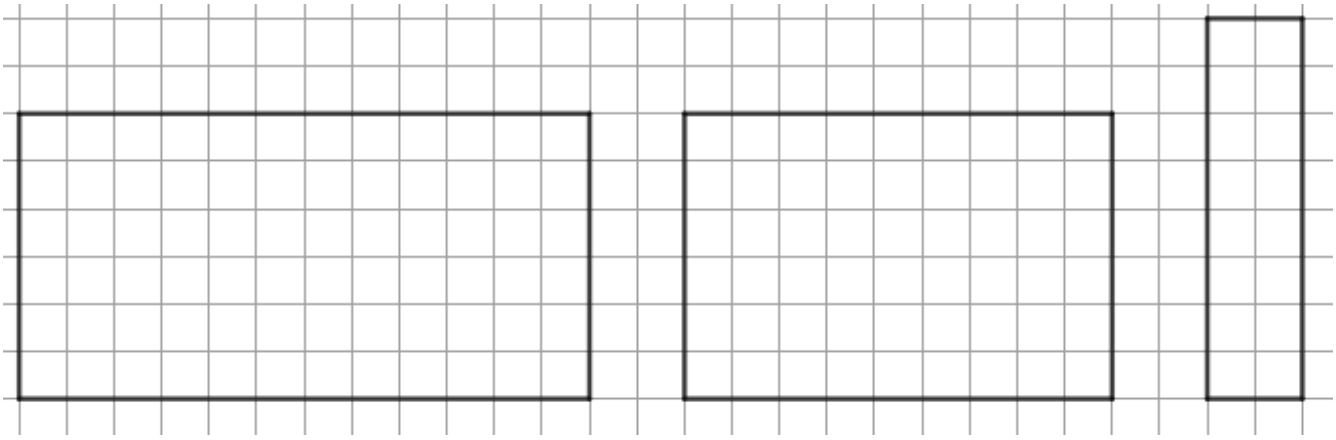




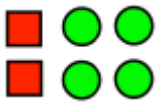


G9 U3 Numeracy #3:

A. Write the width to length ratios of these rectangles in their simplest form:



B. Write the ratio of squares to circles. Simplify the ratio.



Ratio:
Simplified ratio:

C. Simplify the following ratios:

Questions	Answers
(a) 4 : 6	(a)
(e) 30 : 10	(e)
(i) 12 : 28	(i)
(m) 48 : 60	(m)
(q) 2.5 : 4.5	(q)

D. Write the following as ratios (no units) and simplify:

Questions	Ratio, no units	Simplified ratios
(d) 60kg to 72kg	(d)	(d)
(g) 8.5g to 3.5g	(g)	(g)

E. Convert these values to comparable units. Write as a ratio and simplify.

Questions	Units to compare	Ratio	Simplified ratio
e.g: 5 minutes to 1 hour	minutes	5:60	1:12
(a) 8 days to 2 weeks	(a)	(a)	(a)
(d) 95¢ to $3.00	(d)	(d)	(d)
(g) 4500ml to 2 litres	(g)	(g)	(g)

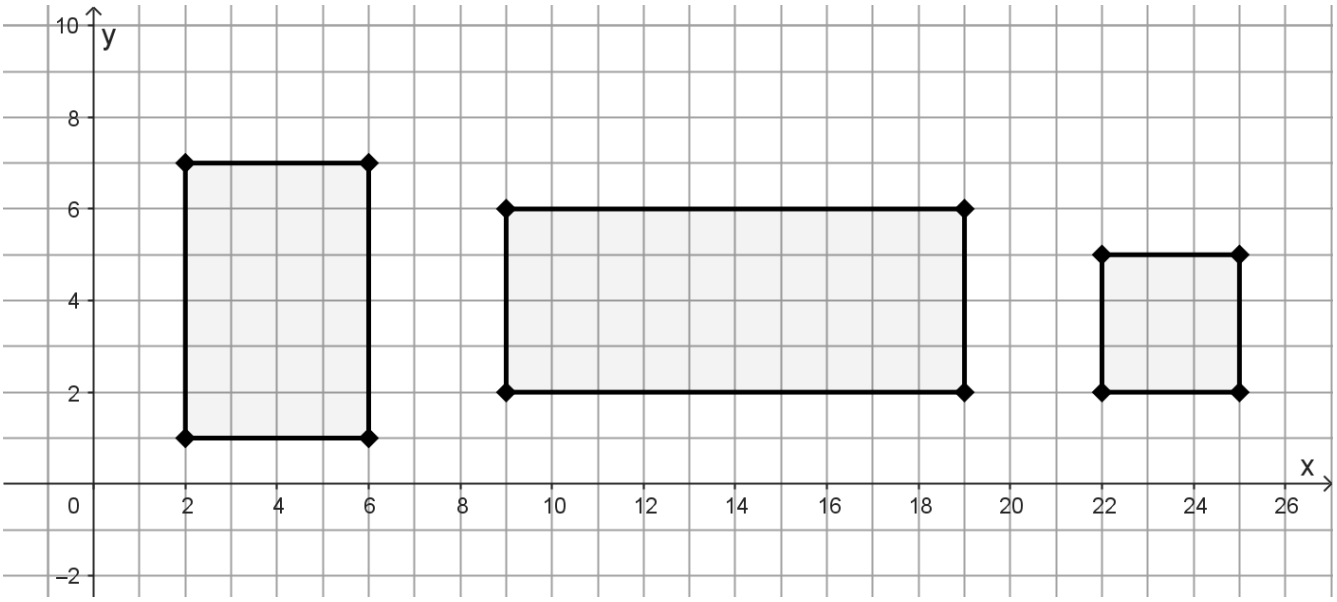
F.

Daisy mixes 50 ml of orange juice with 200 ml of water.
Write down the ratio of orange juice to water.
Give your answer in its simplest form.

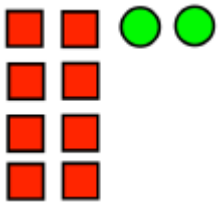


G9 U3 Numeracy #4:

A. Write the width to length ratios of these rectangles in their simplest form:



B. Write the ratio of squares to circles. Simplify the ratio.



Ratio:
Simplified ratio:

C. Simplify the following ratios:

Questions	Answers
(b) 14 : 8	(b)
(f) 12 : 16	(f)
(j) 24 : 36	(j)
(n) 120 : 260	(n)
(r) 1.5 : 20	(r)

D. Write the following as ratios (no units) and simplify:

Questions	Ratio, no units	Simplified ratios
(b) 240cm to 400cm	(b)	(b)
(e) 12 miles to 30 miles	(e)	(e)

E. Convert these values to comparable units. Write as a ratio and simplify.

Questions	Units to compare	Ratio	Simplified ratio
e.g: 5 minutes to 1 hour	minutes	5:60	1:12
(b) 1 hour to 15 minutes	(b)	(b)	(b)
(e) 400m to 1.5km	(e)	(e)	(e)
(h) 8km to 50mm	(h)	(h)	(h)

F.

Aidan, Bill and Cara share 40 sweets in the ratio of their ages.

Aidan is 12 years old. Bill is 9 years old. Cara is 3 years old.

Write down the ratio of their ages in its simplest form.

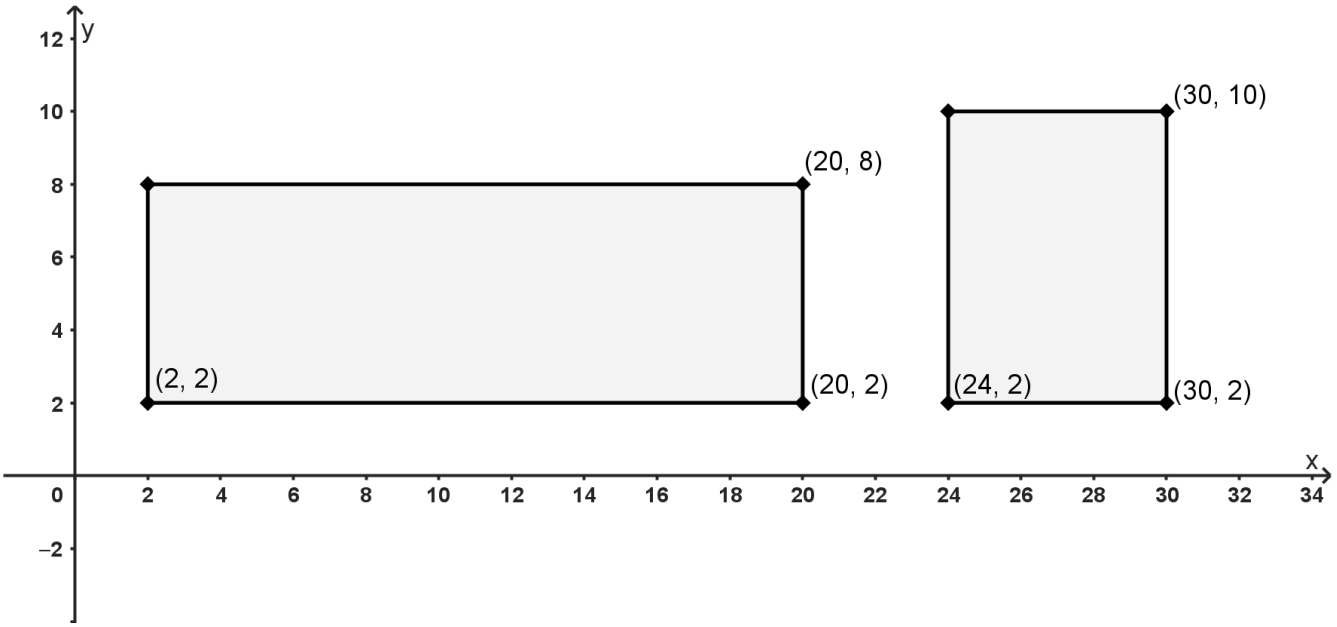
How many sweets do they each get?

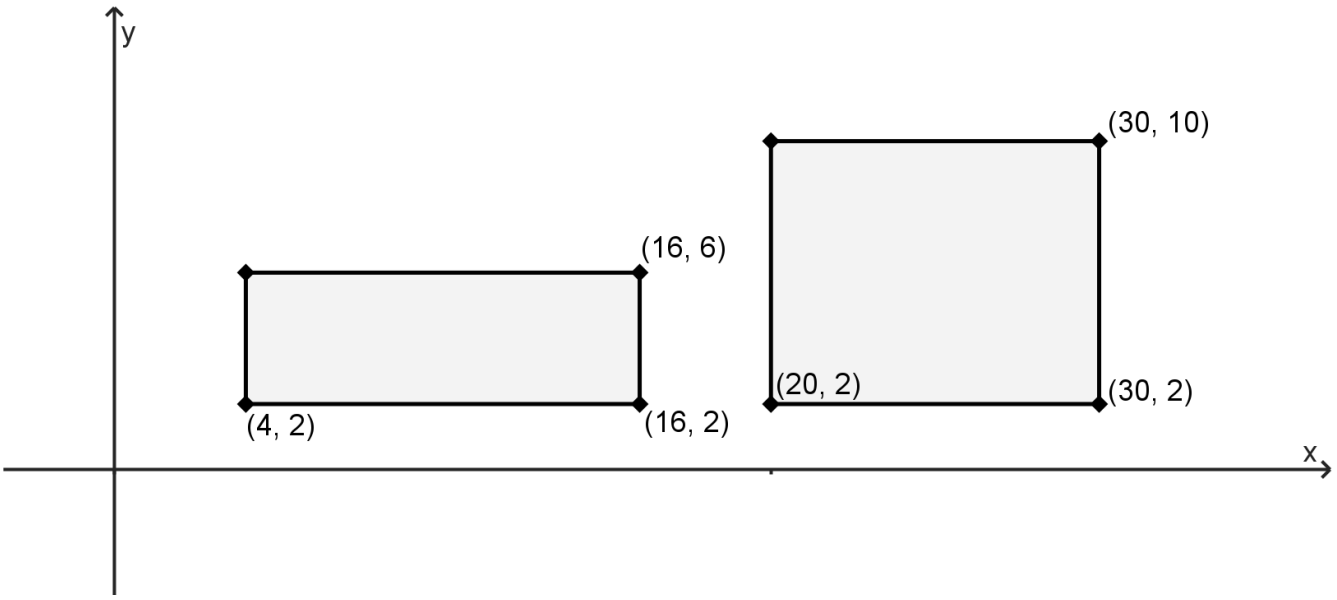
If you were one of those three kids, how would you share out the sweets?



G9 U3 Numeracy #5:

A. Write the width to length ratios of these rectangles in their simplest form:





C. Simplify the following ratios:

(c) 15 : 10	(c)
(g) 6 : 18	(g)
(k) 25 : 60	(k)
(o) 8000 : 75	(o)
(s) 6 : 1.2	(s)

E. Convert these values to comparable units. Write as a ratio and simplify.

Questions	Units to compare	Ratios, comparable units	Simplified ratios
5 minutes to 1 hour	minutes	5:60	1:12
(c) 2 hours to 1 day	(c)	(c)	(c)
(f) 15kg to 900g	(f)	(f)	(f)
(i) 90 minutes to 2 days	(i)	(i)	(i)

F.

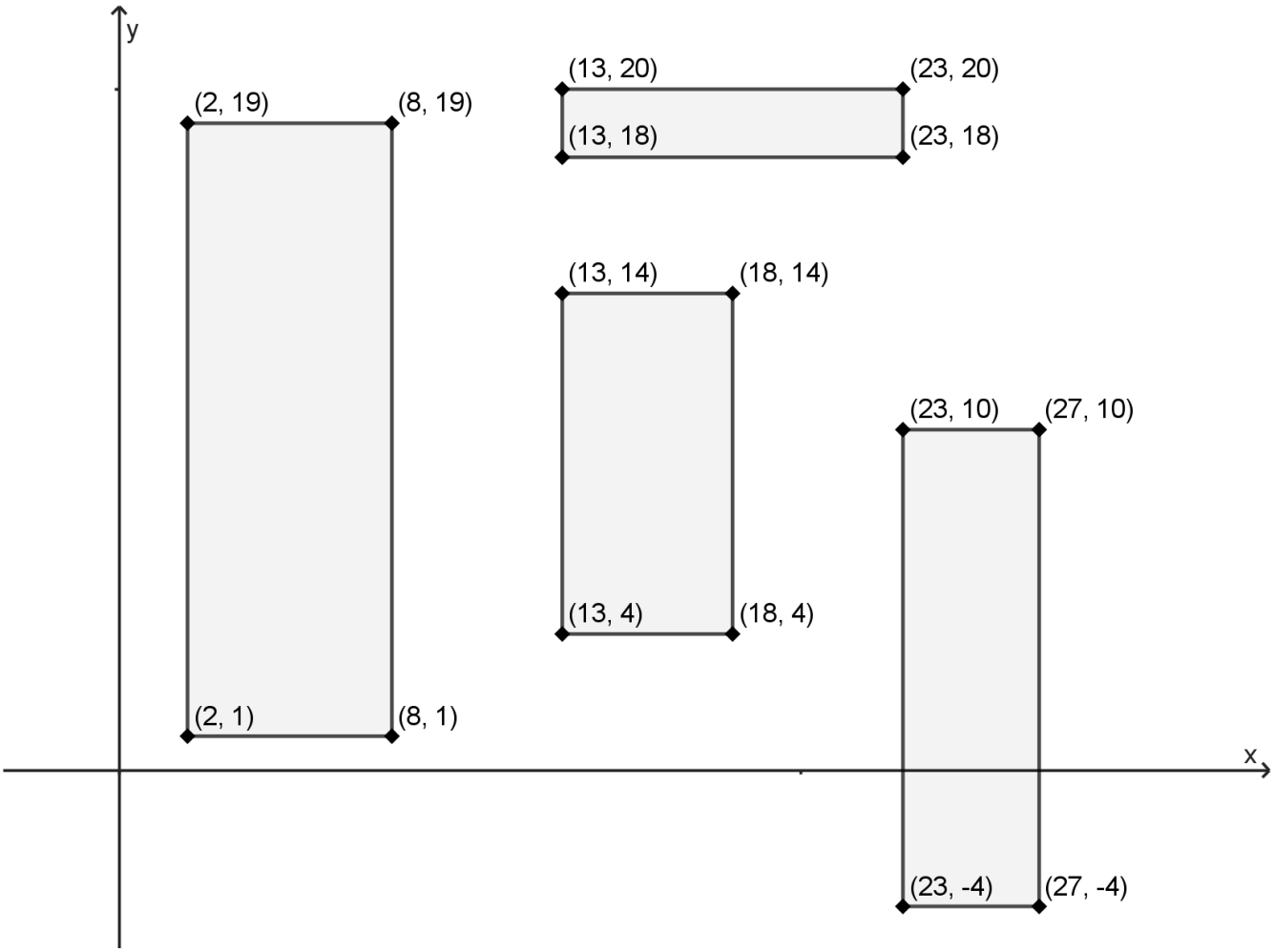
Four teachers are planning school trips.
The table shows the number of students and the number of teachers planned to go on the trip.

	Karting	Museum	Theme Park	University
Number of students	140	221	342	159
Number of teachers	8	12	19	9

For every 18 students there must be at least 1 teacher.
Which trips have planned to bring enough teachers?

G9 U3 Numeracy #6:

A. Write the horizontal width to vertical height ratios of these rectangles in their simplest form:



B. Simplify the following ratios:

(d) 6 : 15	(d)
(h) 45 : 10	(h)
(l) 27 : 63	(l)
(p) 33 : 121	(p)
(t) 2.25 : 4.95	(t)

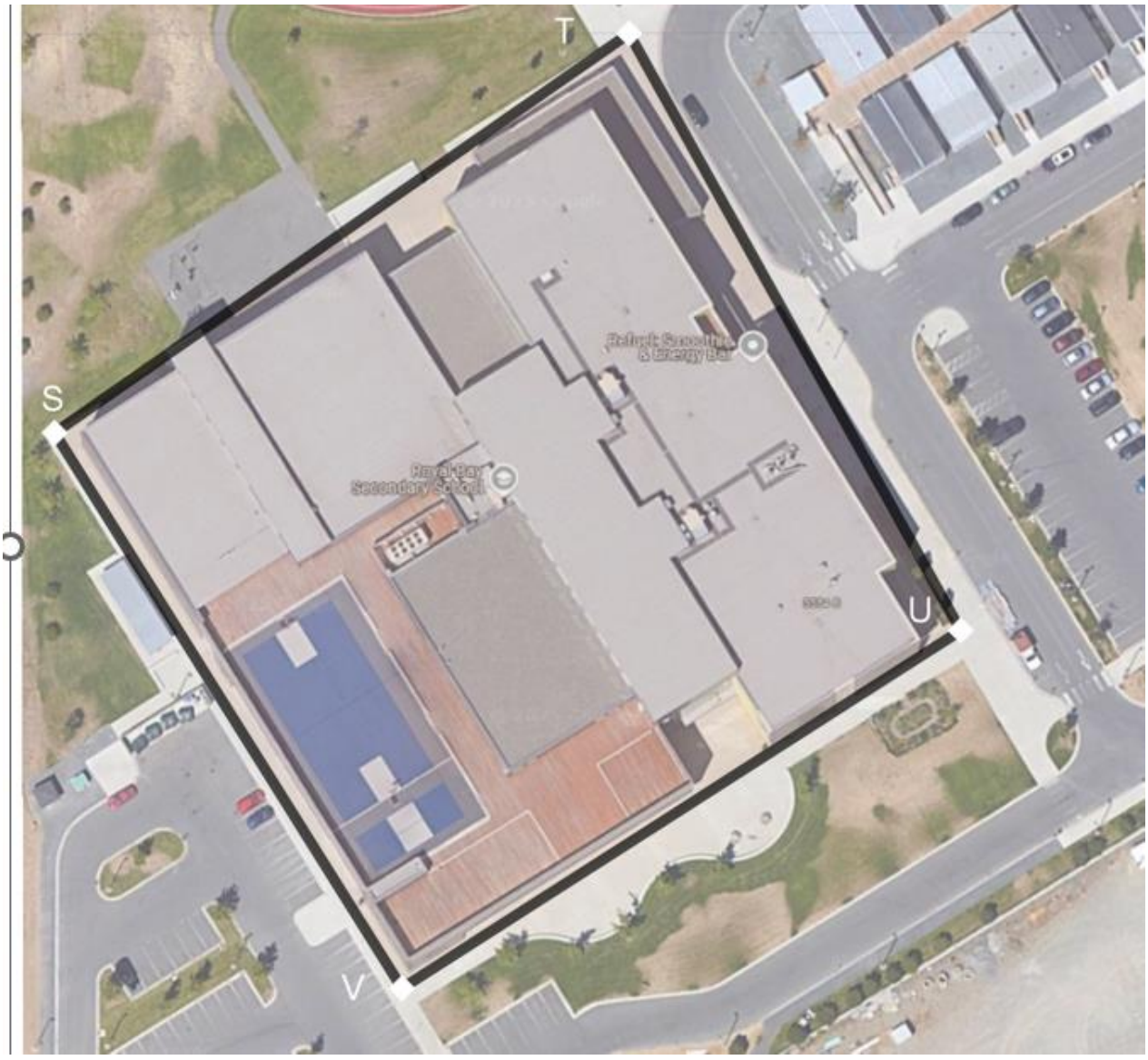
B. A phone screen measures 81mm by 144 mm. Write the ratio of the screen as a ratio in its simplest form.



E. Convert these values to comparable units. Write as a ratio and simplify.

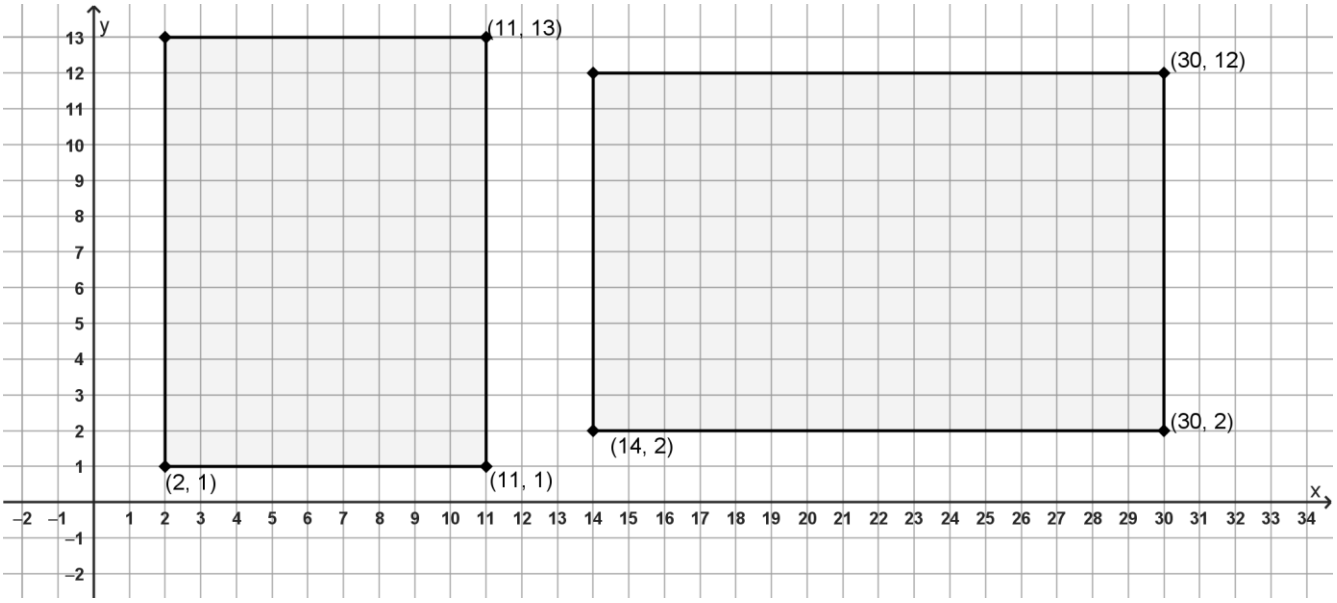
(a) 25 mm to 5 cm	(a)	(a)	(a)
(b) 25 mm to 5 m	(b)	(b)	(b)
(c) 25 mm to 5 km	(c)	(c)	(c)

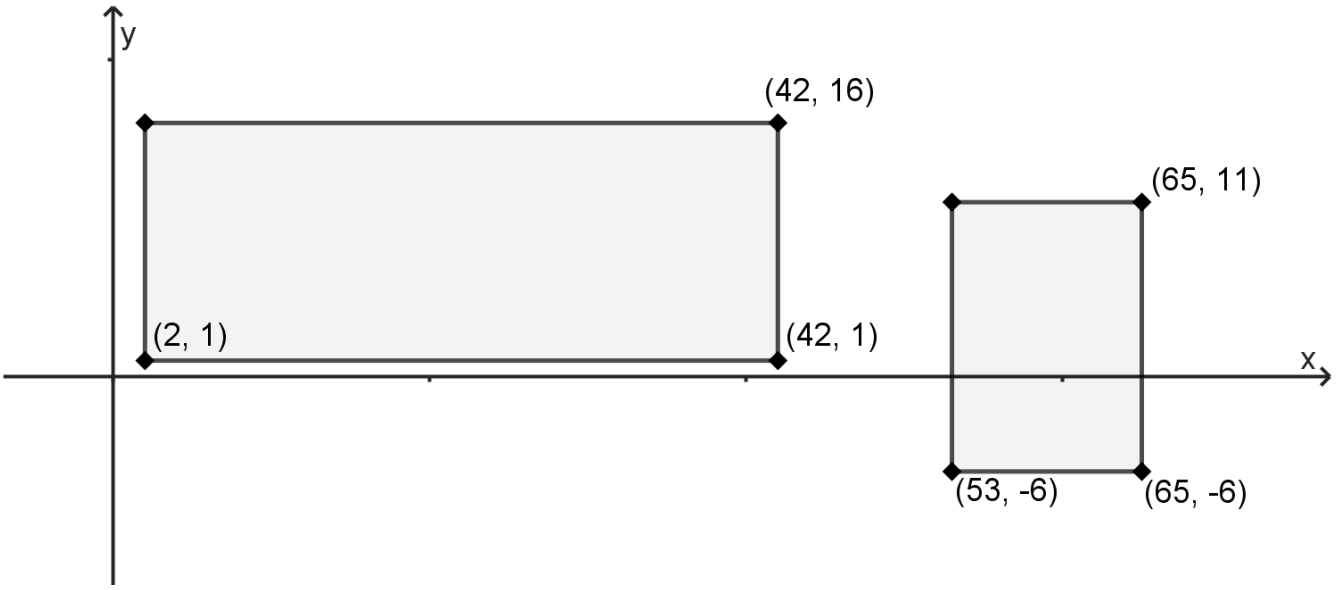
F. The scale of this image is 1:1000. Measure the perimeter STUV. Calculate the school perimeter in m.



G9 U3 Numeracy #7:

A. Write the horizontal width to vertical height ratio of each rectangle. Simplify each fraction.





B. Concrete is made using cement, sand and gravel in the ratio 1:2:3.

How much cement, sand and gravel is required to make 30 kg of concrete?

C. Simplify the following ratios:

(a) 25: 100	(a)
(b) 36: 40: 44	(b)
(c) 21: 63	(c)
(d) 6: 330	(d)
(e) 1.8: 2.4	(e)

D. Convert these values to comparable units. Write as a ratio and simplify.

		Unit	Ratio	Simplified
(a)	40 minutes: 3 hours	(a)	(a)	(a)
(b)	336 cm: 4 m	(b)	(b)	(b)
(c)	800 m: 1.2 km	(c)	(c)	(c)

E bonus...

In a school election there were four candidates: Tom, Rebecca, Olly and Wendy.
540 students voted in the election.

5% of the votes were for Tom

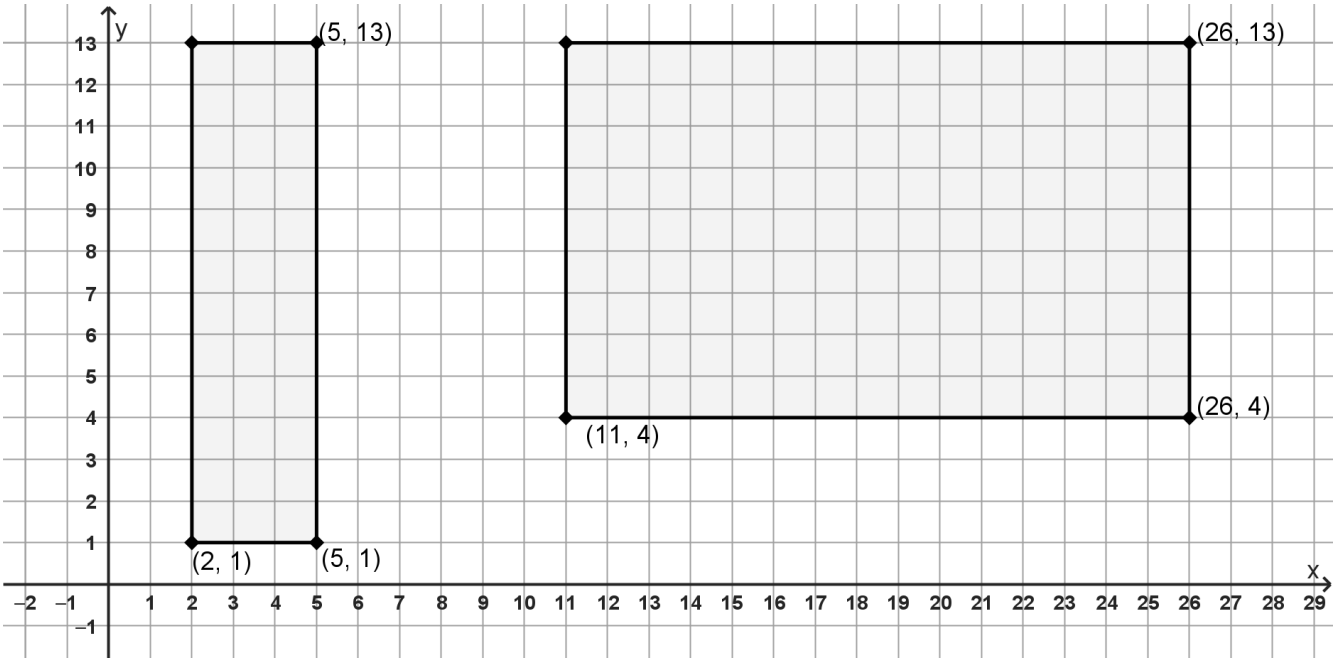
$\frac{2}{9}$ of the votes were for Rebecca

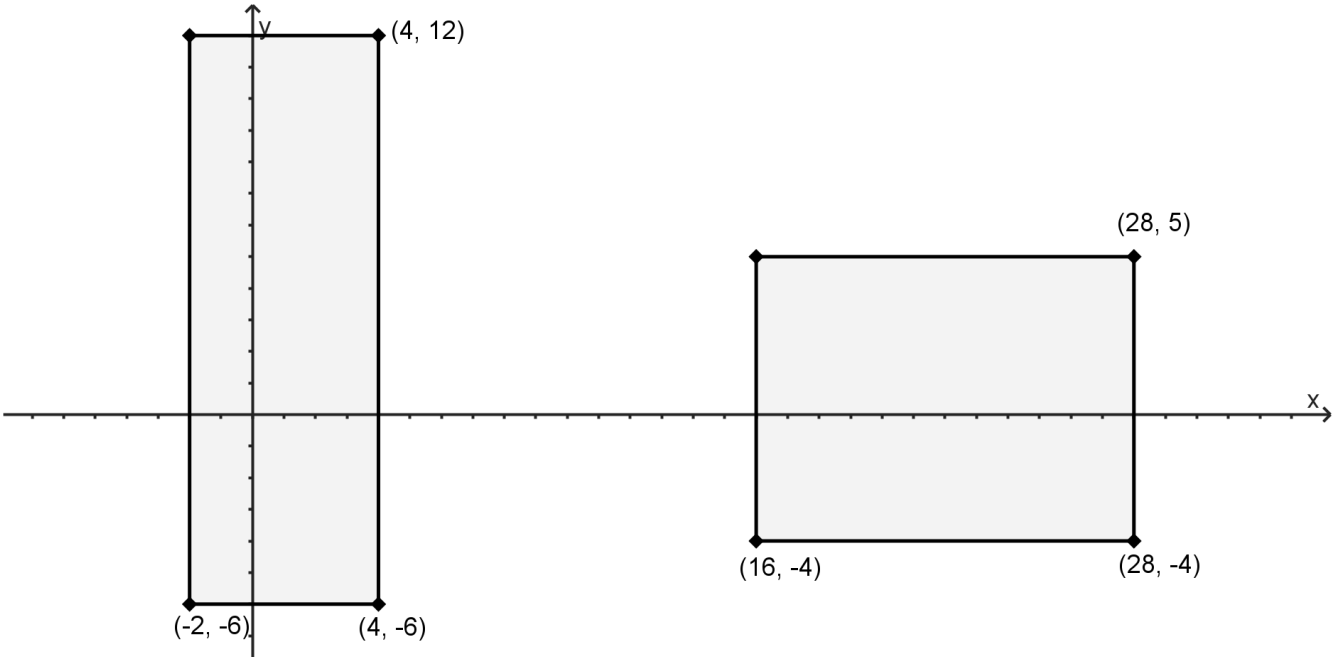
The ratio of the number of votes for Olly to the number of votes to Wendy was 1:2

How many votes were for Wendy?

G9 U3 Numeracy #8:

A. Write the horizontal width to vertical height ratio of each rectangle. Simplify each fraction.





B. Split $50 into three parts using the ratio 1:2:2

C. Simplify the following ratios:

(a) 5: 15	(a)
(b) 12: 40: 20	(b)
(c) 20: 60	(c)
(d) 22: 33: 55	(d)
(e) 4.5: 3.5	(e)

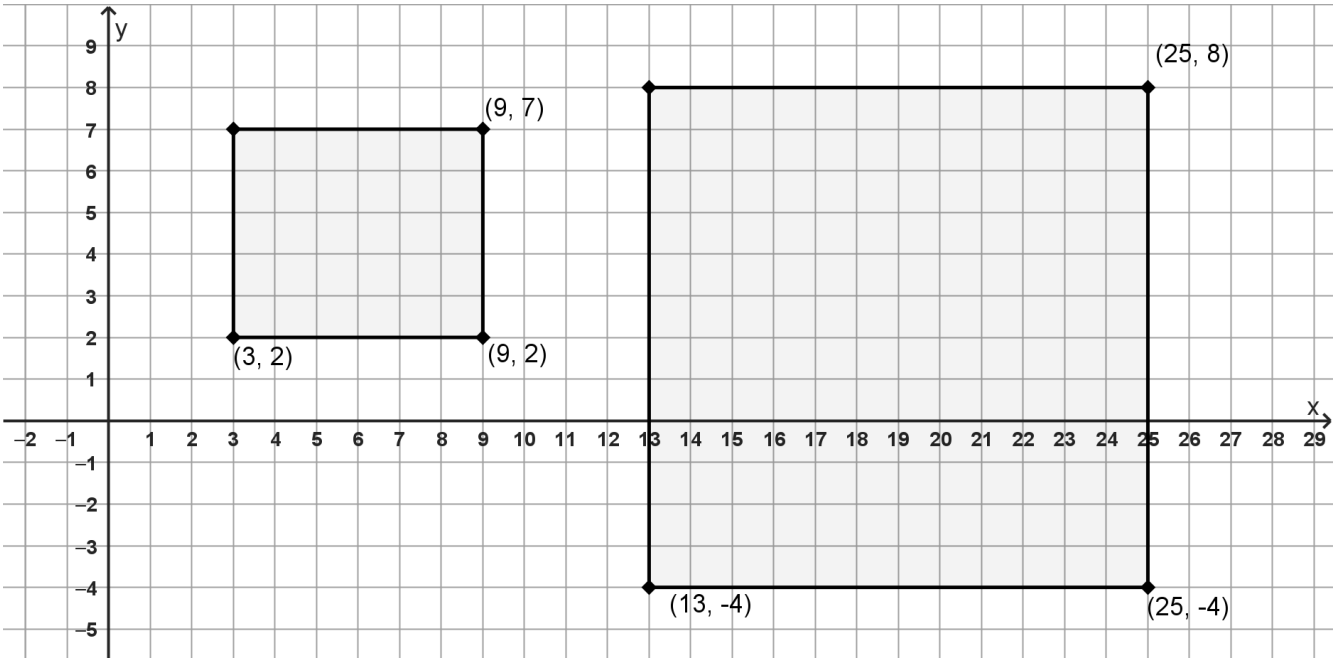
D. Convert these values to comparable units. Write as a ratio and simplify.

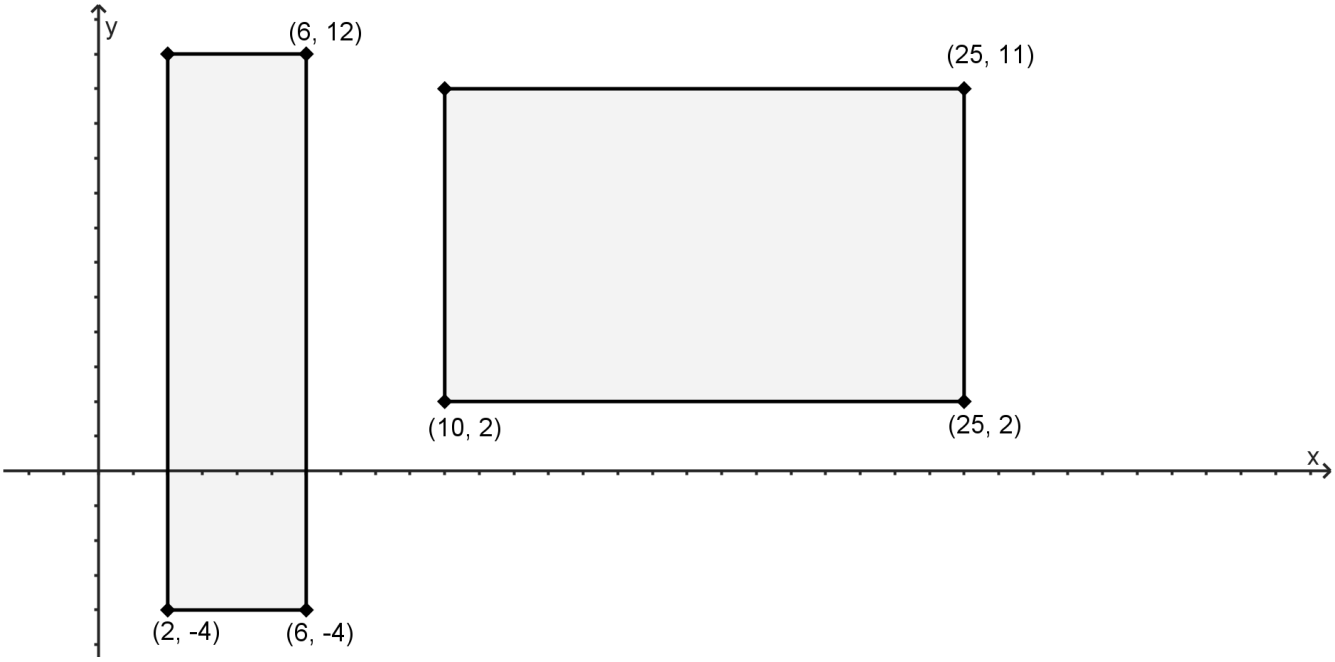
		Unit	Ratio	Simplified
(a)	20 minutes: 1 hours	(a)	(a)	(a)
(b)	250 cm: 3 m	(b)	(b)	(b)
(c)	900 m: 1.5 km	(c)	(c)	(c)



G9 U3 Numeracy #9:

A. Write the horizontal width to vertical height ratio of each rectangle. Simplify each fraction.





B. Split $40 into 3 parts with the ratio 1:2:5

C. Simplify the following ratios:

(a) 20: 100	(a)
(b) 120: 180: 160	(b)
(c) 18: 21	(c)
(d) 4: 100	(d)
(e) 2.7: 2.4	(e)

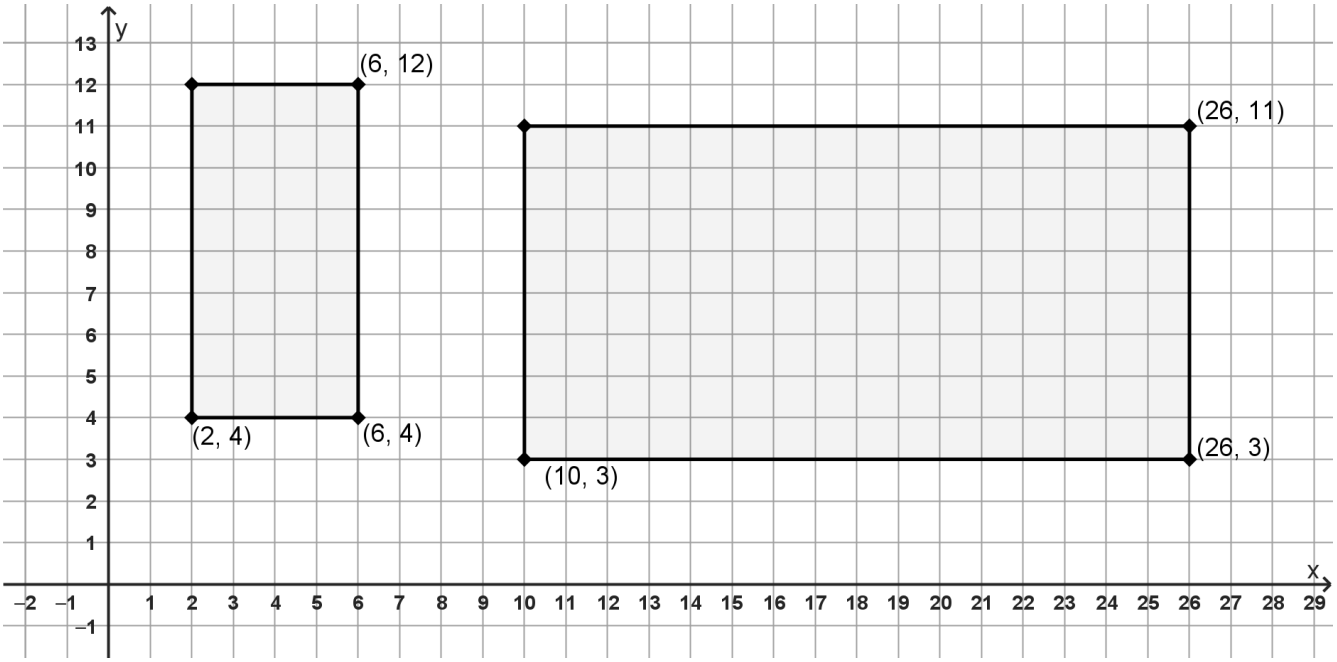
D. Convert these values to comparable units. Write as a ratio and simplify.

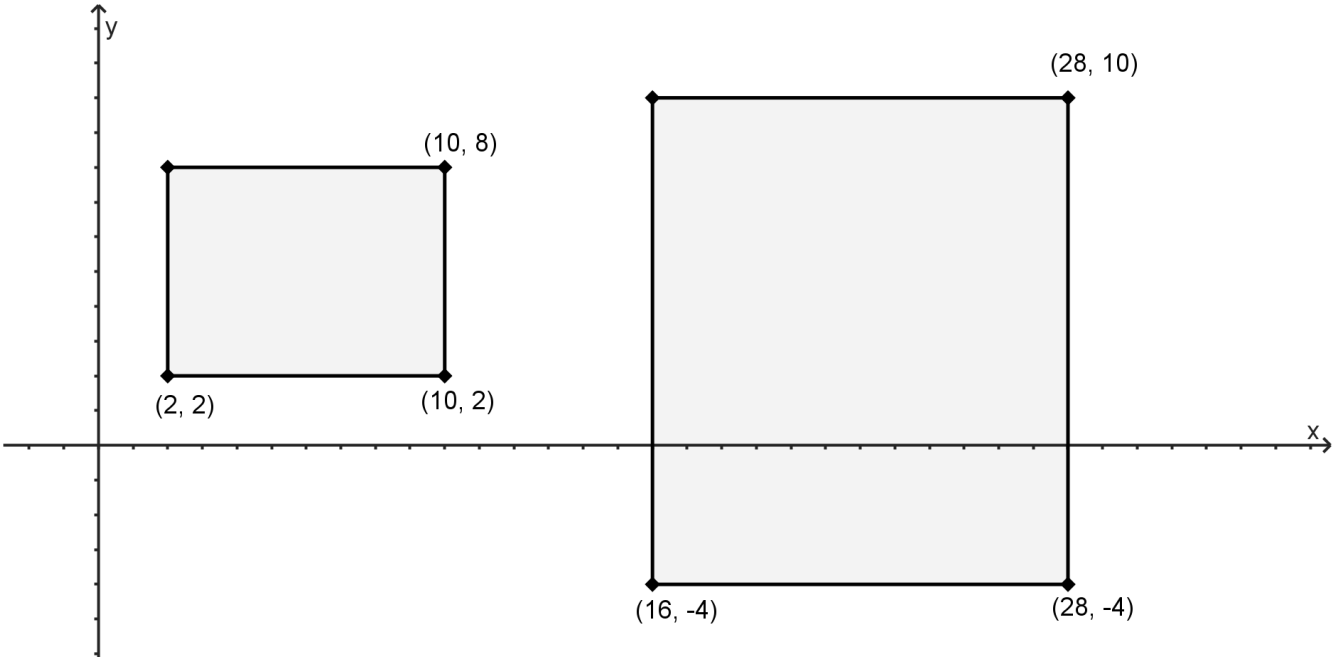
		Unit	Ratio	Simplified
(a)	45 minutes: 1 hours	(a)	(a)	(a)
(b)	75 cm: 2 m	(b)	(b)	(b)
(c)	600 m: 1.8 km	(c)	(c)	(c)



G9 U3 Numeracy #10 QUIZ:

A. Write the horizontal width to vertical height ratio of each rectangle. Simplify each fraction.





B. Split $100 into three parts with the ratio 1:1:2

C. Simplify the following ratios:

(a) 25: 150	(a)
(b) 12: 24: 30	(b)
(c) 20: 35	(c)
(d) 3: 63	(d)
(e) 1.4: 2.1	(e)

D. Convert these values to comparable units. Write as a ratio and simplify.

		Unit	Ratio	Simplified
(a)	40 minutes: 3 hours	(*a*)	(*a*)	(*a*)
(b)	336 cm: 4 m	(b)	(b)	(b)
(c)	800 m: 1.2 km	(c)	(c)	(c)

