YEAR

9

NUMERACY
NON-CALCULATOR

FIRST NAME: _____

LAST NAME: _____

STUDENT TO COMPLETE

Please print your first name and last name in the boxes below. Write in capital letters.

FIRST NAME

LAST NAME

NOTE TO TEACHER – RECORDING STUDENT PARTICIPATION AND DISABILITY ADJUSTMENTS

Please ensure your school NAPLAN coordinator has provided you with a test participation roll for this test. The test participation roll must be printed from the NAPLAN Participation and Registration (PAR) website and used to record student participation and disability adjustments. At the end of the test session, the completed test participation roll must be handed to the NAPLAN coordinator so the data can be entered into PAR.

Disability adjustments

Tick the appropriate box on the test participation roll to indicate the disability adjustments accessed by the student for this test and to identify if the student is enrolled in a Support Class.

Student participation

Tick the appropriate box on the test participation roll if the student was absent, exempt, withdrawn or a sanctioned abandonment from this test.

Books for students in these categories MUST NOT BE RETURNED for processing.

SESSION 2

40 min Time available for students to complete test: 40 minutes

Use 2B pencil or black ballpoint pen only

1 A shop sells balloons in bags of five.

For a party, 20 balloons are needed.

How many bags of balloons are needed?

4	5	25	100
●	○	○	○

2 Joe measures a distance to be 5 metres and 12 centimetres.

Which of these shows how Joe can write this measurement in metres?

5.012 m	5.12 m	6.12 m	6.2 m
○	●	○	○

3 A bag contains 15 beads that are either red or yellow.

The probability of randomly removing a red bead is 20%.

What is the probability of randomly removing a yellow bead?

80 %

4 Amelia wants to find the number of people who are enrolled in either a music class or a drama class but not both.

Which shaded region in the Venn diagrams represents the information Amelia is looking for?

○

○

●

○
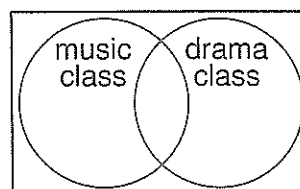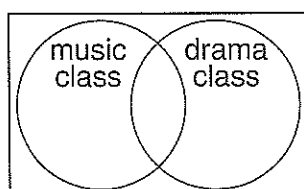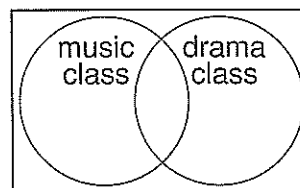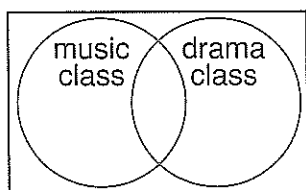
5 Point *P* is translated down 4 units.
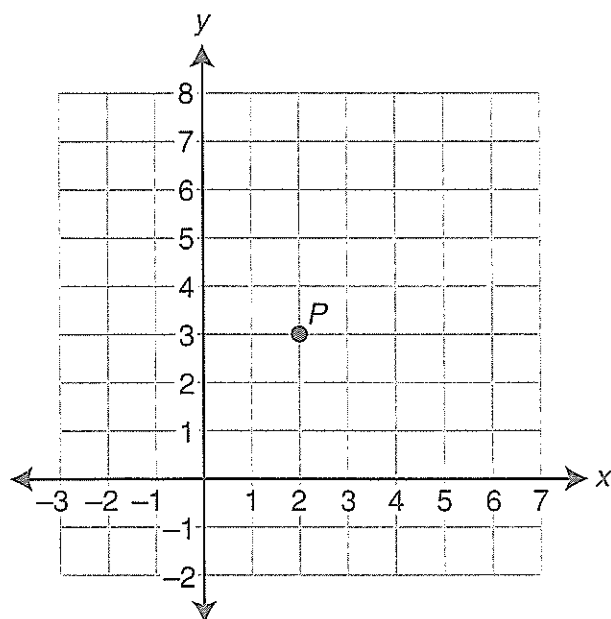
What are the coordinates of the new position of point *P*?

(2, −1)	(2, 7)	(6, 3)	(−2, 3)
⬭	⭕	⭕	⭕

6 The heights, in centimetres, of children on the tennis team are as follows:

119, 122, 119, 127, 127, 117, 128, 124, 127

Select the dot plot that correctly displays the data.
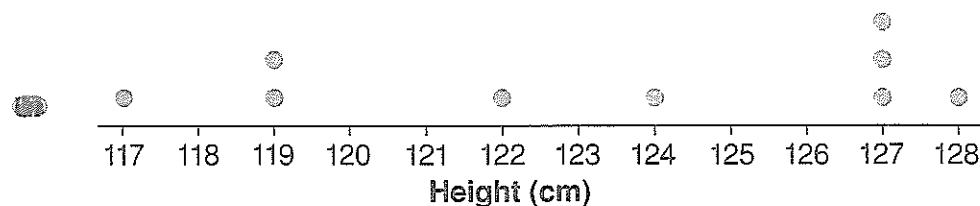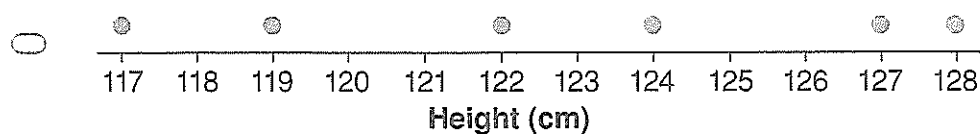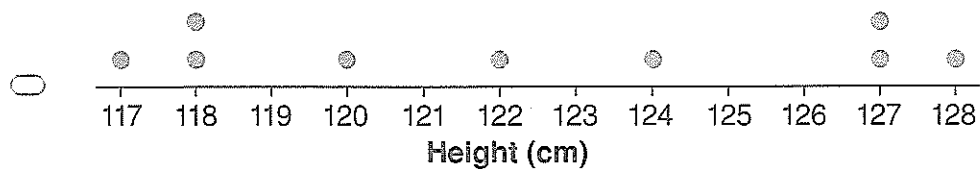
7 Beth made a ramp to replace a set of steps that were 0.5 metres high.

The ratio of the horizontal length of the ramp to its height is 12:1.

height ↕ | horizontal length →
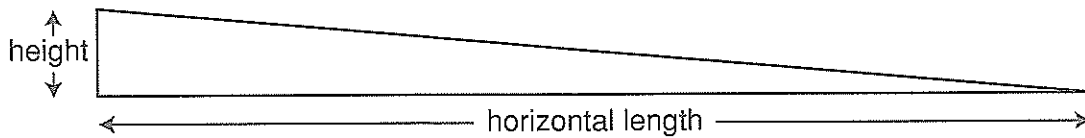
What is the horizontal length of the ramp?

5 metres	6 metres	24 metres	60 metres
◯	⬭	◯	◯

---

8 Tom joins a gym that has a monthly fee of $56.

Members pay an extra $6 per session if they want to work with a gym trainer.

Which expression represents Tom's monthly gym bill if he works with a trainer for x sessions during the month?

$6x$	$56x$	$56x + 6$	$56 + 6x$
◯	◯	◯	⬭

---

9 Grace throws a ball from a height of 2 metres.

- The maximum height of the ball after it is thrown is 4 metres.
- The ball lands on the ground about 2 seconds after it is thrown.

Which graph represents the path of Grace's ball?

© ACARA 2016
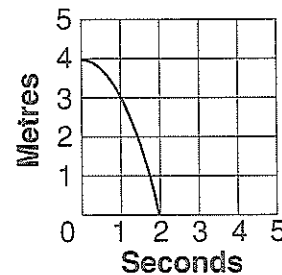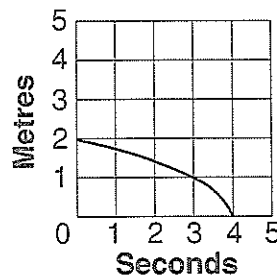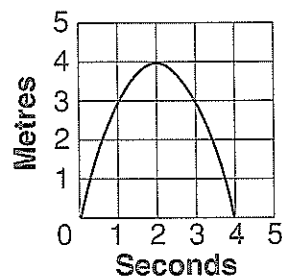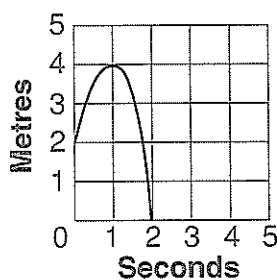
10 Riley is building a table top in the shape of a parallelogram.
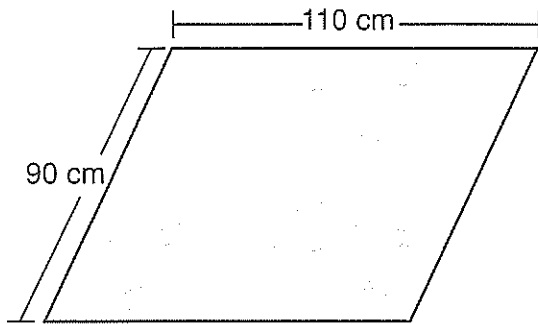
What is the perimeter of the table top?

200 cm	400 cm	440 cm	9900 cm
○	●	○	○

---

11 The diameter of a red blood cell is 0.0076 mm.

Which of these shows the diameter in scientific notation?

7.6×10^{-3}	7.6×10^{-2}	7.6×10^{2}	7.6×10^{3}
●	○	○	○

---

12 Jane and David had identical chocolate bars.

David ate $\dfrac{7}{8}$ of his chocolate bar.

Jane ate more of her chocolate bar than David.

What fraction of her chocolate bar could Jane have eaten?

$\dfrac{6}{7}$	$\dfrac{7}{9}$	$\dfrac{8}{9}$	$\dfrac{8}{10}$
○	○	●	○

---

13 Monti and Tarra buy pencils for school.

Tarra buys 2 times the number of pencils Monti buys plus an additional 4 pencils.

Let m be the number of pencils Monti buys.

Which expression shows the number of pencils Tarra buys?

$(2 \times m) + 4$	$2 + (4 \times m)$	$(m \div 2) - 4$	$2 - (m \div 4)$
●	○	○	○

14 A fair \$1 coin and a fair \$2 coin are tossed at the same time.

What is the probability that both coins will show tails?

$\frac{1}{6}$ ○ $\frac{1}{4}$ ● $\frac{1}{3}$ ○ $\frac{1}{2}$ ○

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15 Myra draws a scale map of Australia on a coordinate grid.
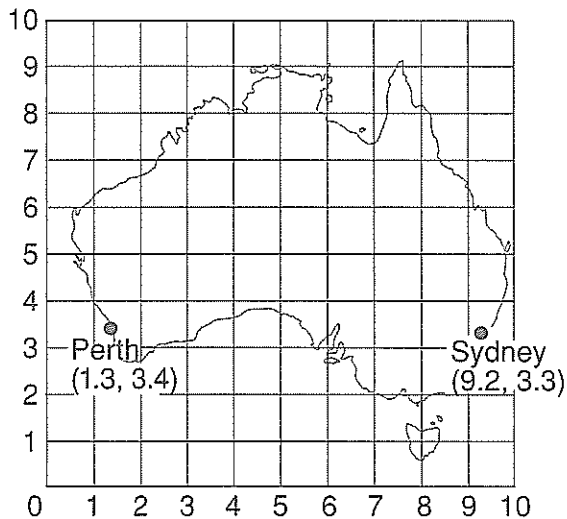
She knows that the actual distance between Perth and Sydney is 3294 kilometres.

Which scale should Myra use for her map?

⊢—⊣ = 78 km   ⊢—⊣ = 262 km   ⊢—⊣ = 400 km   ⊢—⊣ = 500 km

○   ○   ●   ○

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16 This triangle is reflected across the dotted line and then rotated 90° clockwise.
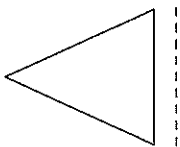
What is the resulting image of the triangle?

○   ○   ●   ○
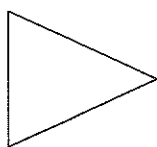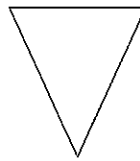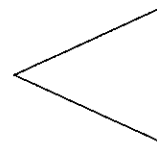
17 The mean age of employees at a company is 40.

The median age of employees at the same company is 35.

A new employee is hired who is 55 years old.

Which of these is possible?

- ○ The mean age stays the same and the median age increases.
- ○ The mean age stays the same and the median age decreases.
- ○ The mean age decreases and the median age increases.
- ⬤ The mean age increases and the median age stays the same.

18 Vicki and Anya are saving money for a holiday.

Vicki has $300 and plans to save $20 each week.

Anya has $250 and plans to save $30 each week.

After how many weeks will Vicki and Anya have saved the same amount?

| 5 | weeks

19
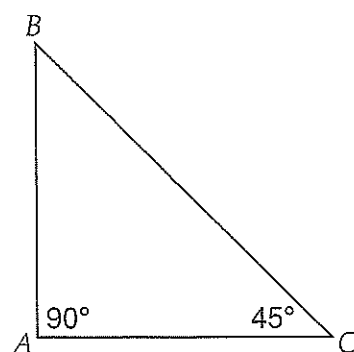
Select the statement that is true about triangle ABC.

- ○ Triangle ABC is a scalene triangle.
- ⬤ Triangle ABC is an isosceles triangle.
- ○ Triangle ABC is an equilateral triangle.
- ○ Triangle ABC is an obtuse triangle.

20 A group of 105 people were asked if they are left-handed or right-handed.

This table shows the results.

	Left-handed	Right-handed	Total
Men	15	35	50
Women	10	45	55
Total	25	80	105

A man was selected at random.

What is the probability that he is left-handed?

0.14	0.24	0.30	0.60
◯	◯	⬤	◯

21 Which of the following is always equal to $x - y$?

$-x - y$	$-x + y$	$y - x$	$-y + x$
◯	◯	◯	⬤

22 A plan of the lawn in Pat's backyard is shown.

3 m

not to scale

2 m — 3 m
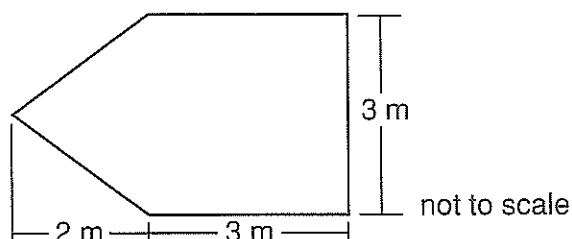
Pat wants to fertilise the lawn in her backyard and needs to know the total area.

What is the total area of Pat's lawn, in square metres?

12 m²
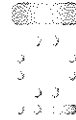
23 Glen has 6 cups of sugar. A biscuit recipe uses $\frac{3}{4}$ of a cup of sugar for each batch.

What is the greatest number of batches Glen can make?

6	$6\frac{3}{4}$	$7\frac{1}{2}$	8	12
○	○	○	●	○

24 Paul is playing a 'Guess My Number' game.

He gives these clues about his number.

My number is a square number.
My number is divisible by 2 and 9.
My number has 2 digits.

What is Paul's number?

36

25 Leslie has read $\frac{5}{8}$ of a 256-page book.

Which decimal shows how much of the book Leslie has read?

0.160	0.320	0.375	0.580	0.625
○	○	○	○	●

26 Jason wants to multiply 35 × 62.

Which of these expressions will give Jason the correct answer?

- ○ (30 × 60) + (5 × 2)
- ○ (30 × 2) + (60 × 5)
- ● (30 × 62) + (5 × 62)
- ○ (30 × 60) + (30 × 2) + (60 × 5)

27 Holly is saving to buy her first car.

She created a table to keep track of her savings.

Number of months (x)	2	5	8	10
Amount in Holly's savings account (y)	310	430	550	630

Complete the rule for the linear relationship between the amount of money in Holly's savings account and the number of months of saving.

$y =$ | 60 | $x + 230$

---

28 Michelle bought a pair of sunglasses which cost $19.50 before the Goods and Services Tax (GST) was added.
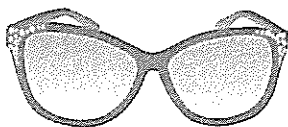
How much did Michelle's sunglasses cost after adding the 10% GST?

$ | 21·45 |

---

29 Harper has a tablecloth with an area of 3 square metres.

What is the area of his tablecloth in square centimetres?

9 cm²   30 cm²   300 cm²   30 000 cm²   90 000 cm²
○   ○   ○   ⬬   ○

---

30 Sam rents a truck from a hire company.

The cost to rent the truck is directly proportional to the number of kilometres driven.

The rental cost to drive 200 km is $87.50.

What is the rental cost to drive 80 kilometres?

$ | 35.00 |

31 Mona can walk from home to school following the roads, or she can cut across a vacant block as shown in the diagram below.

Along the roads she walks 600 metres east and 800 metres south.
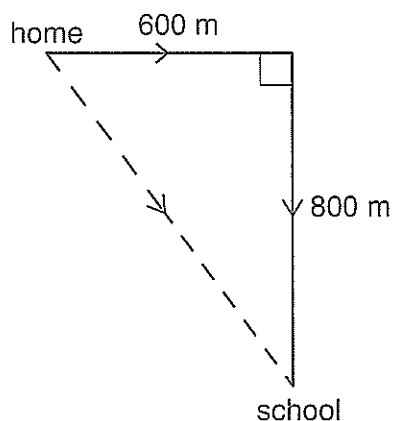
How many metres less does she walk by going across the vacant block?

400 m

32 This table shows the receiving areas of two large radio telescopes.

Name of telescope	Receiving area
SKA	1 square kilometre
ASKAP	4000 square metres

What is the ratio of the receiving area of the ASKAP telescope to the receiving area of the SKA telescope?

| 4:1 | 2:5 | 1:200 | 1:250 | 4000:1 |
| ○ | ○ | ○ | ● | ○ |

STOP – END OF TEST

NUMERACY
CALCULATOR ALLOWED

YEAR

9

2016

FIRST NAME: _____

LAST NAME: _____

SCHOOL: ST ALOYSIUS COLLEGE

SCHOOL CODE: 295_9703

GENDER: Male ◯ Female ◯

DATE OF BIRTH: ____ / ____ / _____
(DD) (MM) (YYYY)

329092487-6

STUDENT TO COMPLETE

Please print your first name and last name in the boxes below. Write in capital letters.

FIRST NAME

LAST NAME

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---

40 min Time available for students to complete test: 40 minutes

Use 2B pencil or black ballpoint pen only

1 Jarrad is paid $18 per hour at his job.

How much will he be paid for working 6 hours?

$12	$24	$108	$216
◯	◯	⬤	◯

2 Which of the following is equal to 36?

$2^3 \times 2^2$	$2^3 + 2^2$	$3^2 + 2^2$	$3^2 \times 2^2$
◯	◯	◯	⬤

3 When keeping horses, 1 hectare of land is recommended for every 2 horses.

How many hectares of land would be needed for 8 horses?

4	6	10	16
⬤	◯	◯	◯

4 What is the value of the expression $5 + (-17) - (-4)$?

-16	-8	18	26
◯	⬤	◯	◯

5 Lara earned $16.92 per hour working at a store.

This week she worked for $12\frac{1}{4}$ hours.

She used the money she earned this week to buy concert tickets for herself and her friends.

Each concert ticket cost $19.55.

What is the maximum number of concert tickets Lara could have bought?

10	tickets

2

6 Tammy left her house at 8:35 in the morning and did not return until 4:45 in the afternoon.

How long was Tammy away from her house?

- ○ 3 hours 50 minutes
- ○ 4 hours 10 minutes
- ○ 7 hours 50 minutes
- ● 8 hours 10 minutes
- ○ 13 hours 20 minutes

7 Mike had 4 cups of rice.

He used $\frac{1}{2}$ cup of rice for one recipe and $1\frac{1}{4}$ cups of rice for another recipe.

How many cups of rice did Mike have left?

$1\frac{1}{4}$	$2\frac{1}{4}$	$2\frac{1}{2}$	$5\frac{3}{4}$
○	●	○	○

8 Mason's receipt from an electronics store was torn and part of it was lost.

One-Stop Electronics Store

Quantity	Item	Cost
2	10-pack batteries	
4	USB cable	
1	16 GB flash drive	

Total for 7 items   Total amc

He knew:

- each 10-pack of batteries cost just under $6
- each USB cable cost just under $11

His credit card statement showed that he spent $72.40 at the electronics store.

About how much did the flash drive cost?

$5	$16	$28	$55
○	●	○	○

9 At a hardware store, 20 kilograms of sand costs $4.50 and 40 kilograms of the same sand costs $9.00.

Which graph could show the relationship between the amount of sand and its cost?

Cost (dollars) / Sand (kg)

⬤   ⬭   ⬭
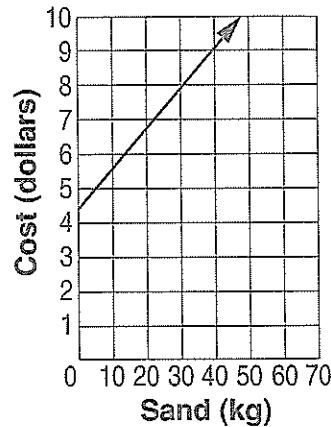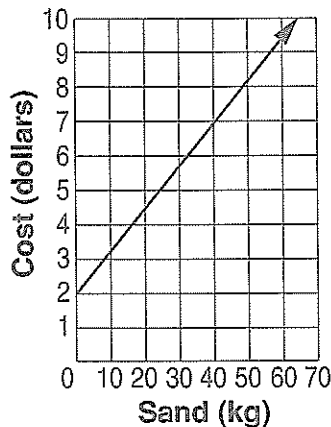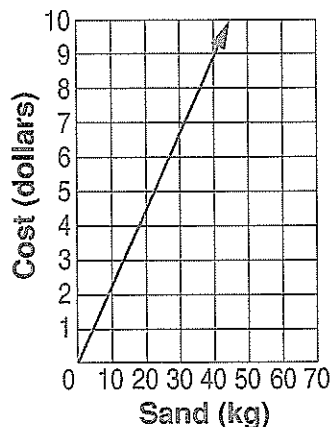
10 James spins the arrow on the wheel to win a prize.

The arrow has an equal chance of landing on each section.
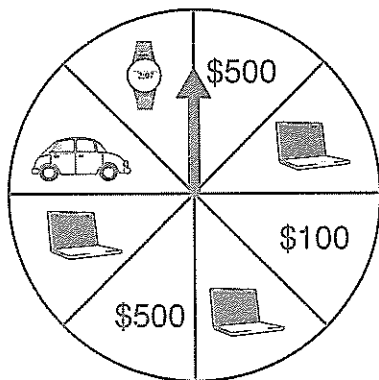
What is the probability that the arrow will land on 💻 ?

0.125	0.200	0.375	0.380	0.600
⬭	⬭	⬤	⬭	⬭

11 A store sold plates for $5 each and mugs for $3 each.

Nathan wrote the equation $5p + 3m = 75$ to calculate the number of plates and mugs he could buy for exactly $75.

How many plates and mugs did Nathan buy for $75?

- ○ 5 plates and 3 mugs
- ○ 5 plates and 12 mugs
- ● 9 plates and 10 mugs
- ○ 15 plates and 25 mugs

12 Leo recorded the number of pages he printed over five weeks.

17, 22, 17, 24, 20

What is the mean number of pages Leo printed?

20

13 A jam recipe uses 2 cups of sugar for every 3 cups of fruit.

Select the correct combination of sugar and fruit for this recipe.

- ○ $\frac{1}{2}$ cup of sugar, $\frac{1}{3}$ cup of fruit
- ● 1 cup of sugar, 1.5 cups of fruit
- ○ 1.5 cups of sugar, 2.5 cups of fruit
- ○ 4 cups of sugar, 5 cups of fruit

14 A class is making crystals using sugar-water and string.

Each student needs 0.25 litres of sugar-water for the experiment.

How many millilitres of sugar-water does each student need?

250 millilitres

15 The table below lists the original price and the amount of discount of the same shirt at four different shops.

SHIRT SALE		
Shop	Original price	Discount
A	$20	25%
B	$24	$\frac{1}{3}$
C	$30	30%
D	$18	$2 off

Which shop has the lowest sale price for the shirt?

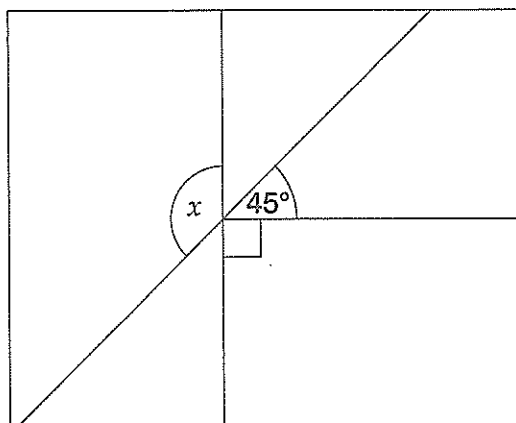| A	B	C	D
●	○	○	○

16 Ruby designs a rectangular picture for her wall.

Inside her rectangle, she adds three straight lines as shown.

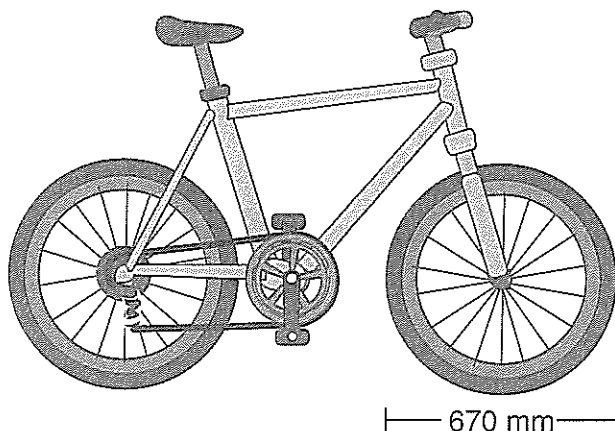What is the size of angle x?

135	degrees

17 The wheels on a bicycle each have a diameter of 670 mm.

├── 670 mm ──┤

The wheels turn 10 times.

Approximately how many metres has the bicycle travelled?

10 m	21 m	42 m	352 m
○	●	○	○

18 Which expression is equivalent to $3x^2 - 9x + x^3$?

$3(x^2 - 3x + x^3)$	$3x(x - 3 + x^2)$	$x^3(3x^2 - 9x + x^3)$	$x(3x - 9 + x^2)$
○	○	○	●

19 Jenny asked 35 people whether they work, go to school, do both or do neither.
The Venn diagram shows the results.
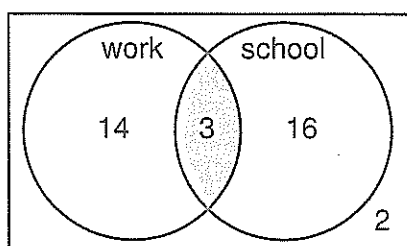
What is the probability that a person randomly selected from the group goes to school and works, rounded to three decimal places?
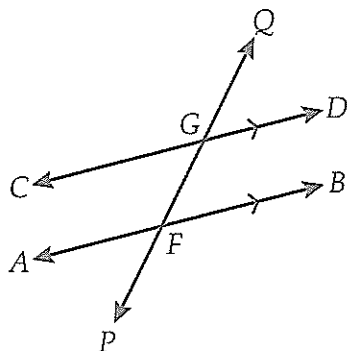
0.943	0.100	0.091	0.086	0.057
○	○	○	●	○

20 Lines *AB* and *CD* are parallel.

Line *PQ* intersects lines *AB* and *CD* as shown.

Which pair of angles are equal?

○ ∠*DGQ* and ∠*DGP*

○ ∠*CGP* and ∠*AFQ*

○ ∠*QGC* and ∠*QGD*

● ∠*PGC* and ∠*PFA*

21 Anne made a dot plot to show the ages of the students in her dance class.

Age (years)
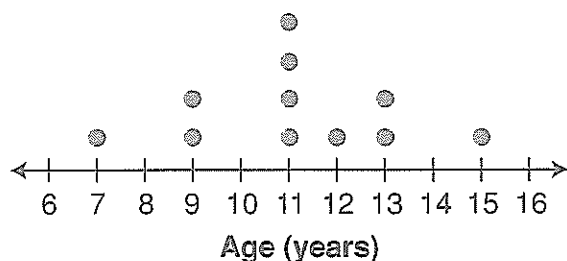
What is the range of ages of the students in Anne's dance class?

4	8	10	11
○	◐	○	○

22 There are 52 people in a conference room.

The ratio of females to males in the room is 15 to 11.

How many females need to leave the room so that the ratio of females to males in the room is 1 to 1?
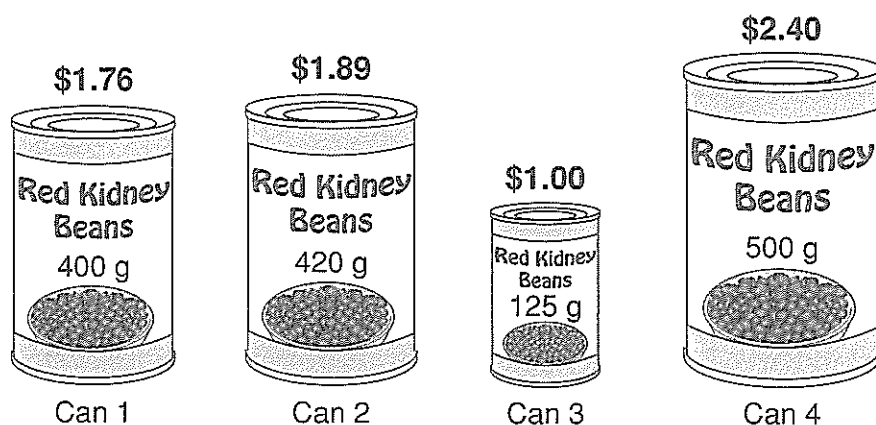
8

23 A school vegetable garden has:

- 4 lettuce plants

- 2 less capsicum plants than spinach plants

- 4 times as many spinach plants as lettuce plants

- 1 parsley plant, 1 sage plant and 1 basil plant and

- the number of spinach plants is a quarter of the number of tomato plants.

How many plants are growing in the school vegetable garden?

101

24 A shop sells four sizes of cans of red kidney beans.

$1.76
Red Kidney Beans
400 g
Can 1

$1.89
Red Kidney Beans
420 g
Can 2

$1.00
Red Kidney Beans
125 g
Can 3

$2.40
Red Kidney Beans
500 g
Can 4

Which can of red kidney beans costs the least per gram?

Can 1	Can 2	Can 3	Can 4
⬤	◯	◯	◯

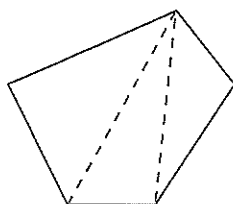**25** The sum of the interior angles of a pentagon can be found by first dividing it into triangles from one vertex.

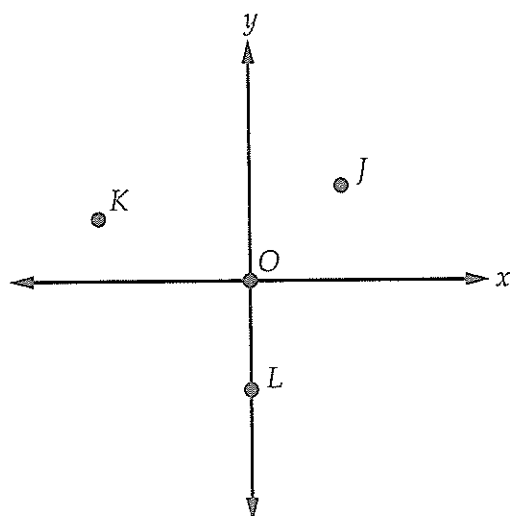What is the sum of the interior angles of this pentagon?

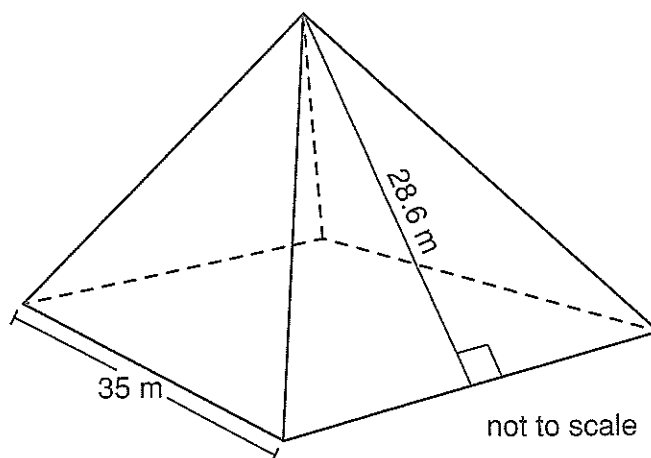540 degrees

26 A Cartesian plane is shown.

Select the correct statement below.

○ O is located where $x = 0$ and $y < 0$.

○ J is located where $x > 0$ and $y < 0$.

○ K is located where $x < 0$ and $y > 0$.

● L is located where $x < 0$ and $y = 0$.

27 The Louvre Pyramid in Paris, France, is made up of four triangles and a square.

28.6 m

35 m

not to scale

Roland is hired to clean the interior sides and the floor of the Louvre Pyramid.

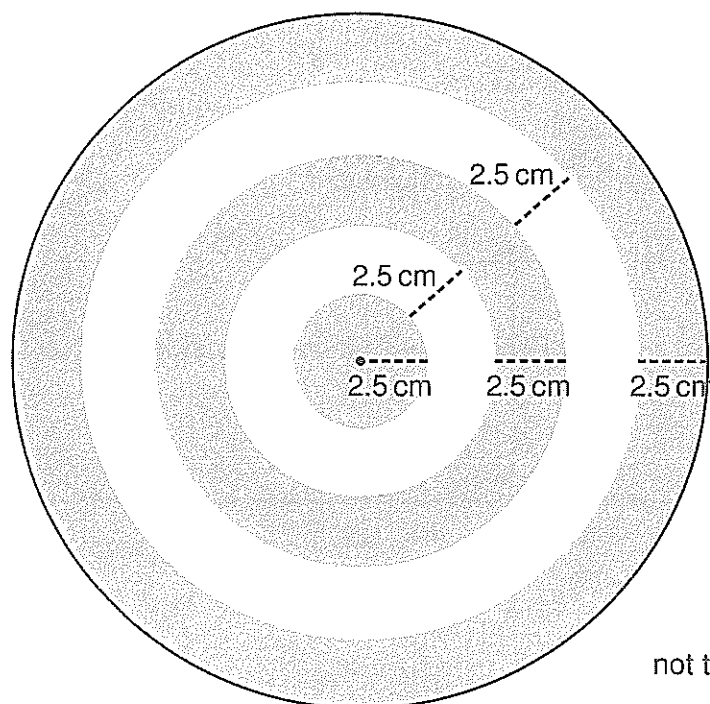What is the area that Roland will need to clean?

| 3227 | m² |

28 Mike put $1000 into a simple interest account for a year.

He did not take any money out or add any money to the account.

At the end of the year he had $1050 in the account.

What was the annual percentage interest rate?

5 %

29 Seth draws a target as shown.

2.5 cm

2.5 cm

2.5 cm   2.5 cm   2.5 cm

not to scale

What is the area of the entire target?

Round your answer to the nearest square centimetre.

491 cm²

30 The box below contains pieces of chocolate.

9.65 cm

8.25 cm

21 cm

not to scale

10 cm
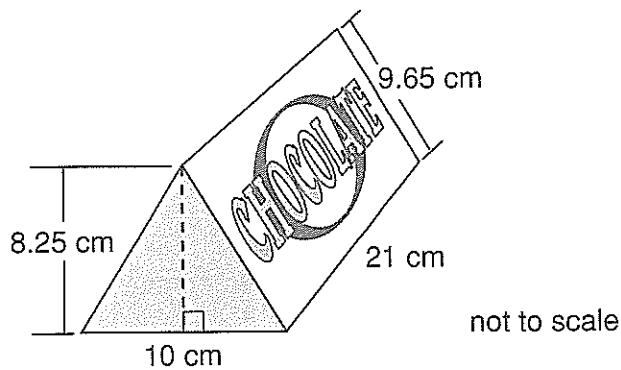
Each piece of chocolate is 75 cm³ in size.

8 cm

not to scale

9.9 cm
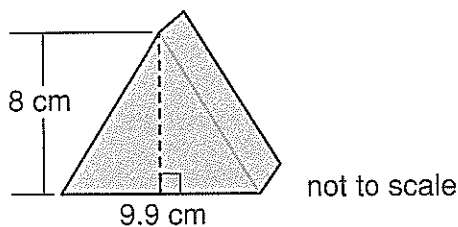
What is the maximum number of pieces of chocolate that can fit inside the box?

11

31 What is the value of x if $\frac{3}{2}x + 4 = 2x - 1$?

10

32 A design is made using twice as many large beads as small beads.

The mass of each large bead is 120 milligrams.

The mass of each small bead is 80 milligrams.

The total mass of all the beads used is 32 grams.

How many beads are used in total to make the design?

300

12   5092487

STOP – END OF TEST

Do not turn this page.

13   5092487