

NUMERACY

CALCULATOR ALLOWED



YEAR

9
2016

SESSION 1

40 min

Time available for students to
complete test: 40 minutes

Use 2B or HB
pencil **only**



YEAR 9 NUMERACY (CALCULATOR ALLOWED)



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?

tickets

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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 amount

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

☐

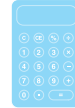
\$28

☐

\$55

☐

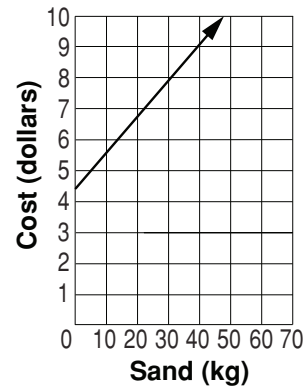
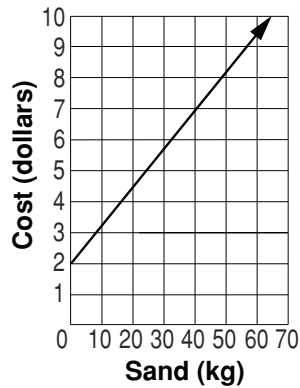
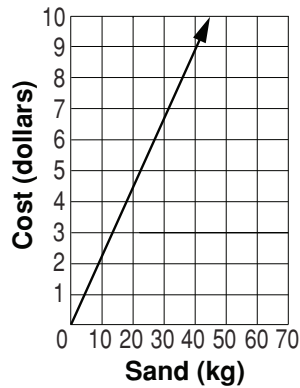
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9

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

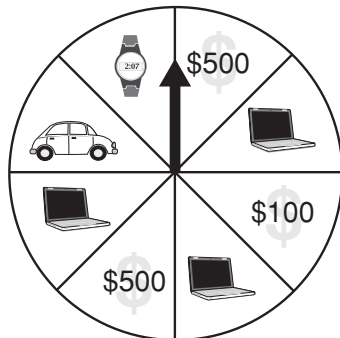
Which graph could show the relationship between the amount of sand and its cost?



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



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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?

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?

millilitres

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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

☐

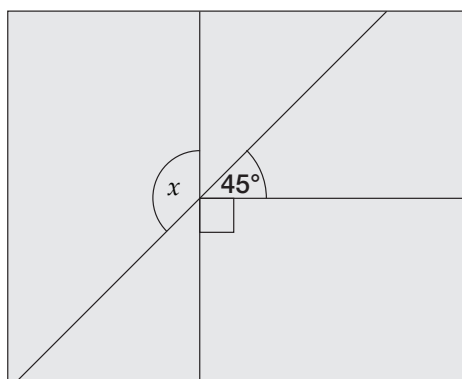
D

☐

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 ?

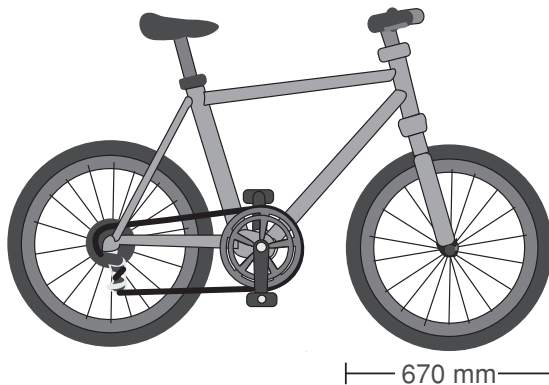
degrees

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17

The wheels on a bicycle each have a diameter of 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 $3x^2 - 9x + x^3$?

$3(x^2 - 3x + x^3)$

☐

$3x(x - 3 + x^2)$

☐

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

☐

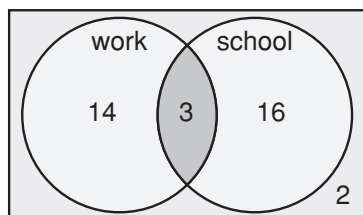
$x(3x - 9 + x^2)$

☐

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

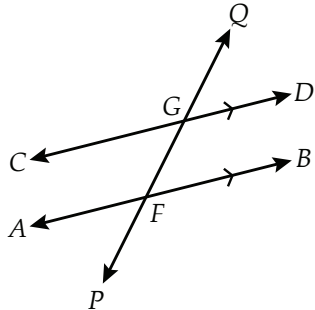
☐



20

Lines AB and CD are parallel.

Line PQ intersects lines AB and CD as shown.



Which pair of angles are equal?

- ☐ $\angle DGQ$ and $\angle DGP$
- ☐ $\angle CGP$ and $\angle AFQ$
- ☐ $\angle QGC$ and $\angle QGD$
- ☐ $\angle PGC$ and $\angle PFA$

21

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



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?

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23

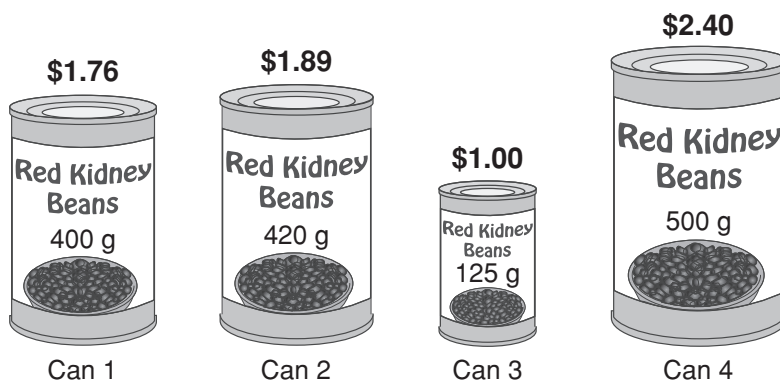
A school vegetable garden has:

- 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?

24

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



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

Can 1

☐

Can 2

☐

Can 3

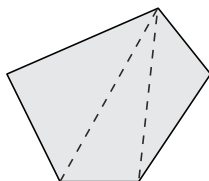
☐

Can 4

☐

25

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



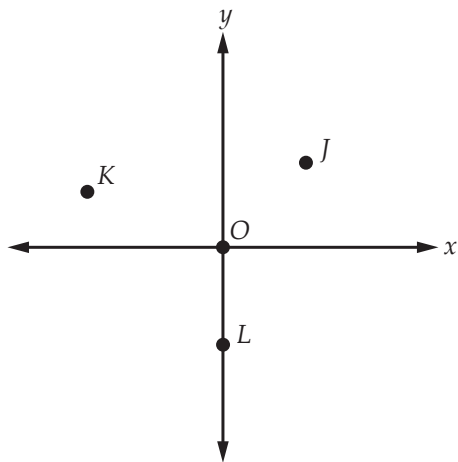
What is the sum of the interior angles of this pentagon?

degrees



26

A Cartesian plane is shown.

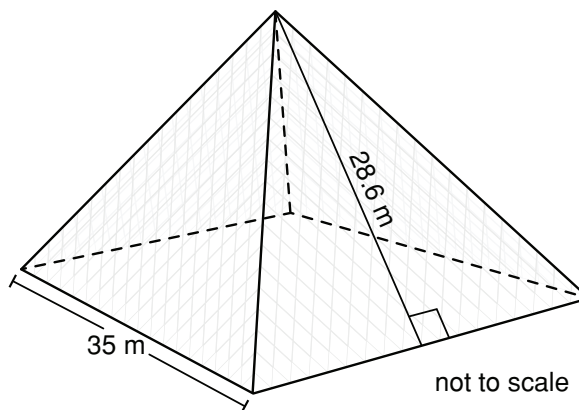


Select the correct statement below.

- ☐ 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.



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?

m²

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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.

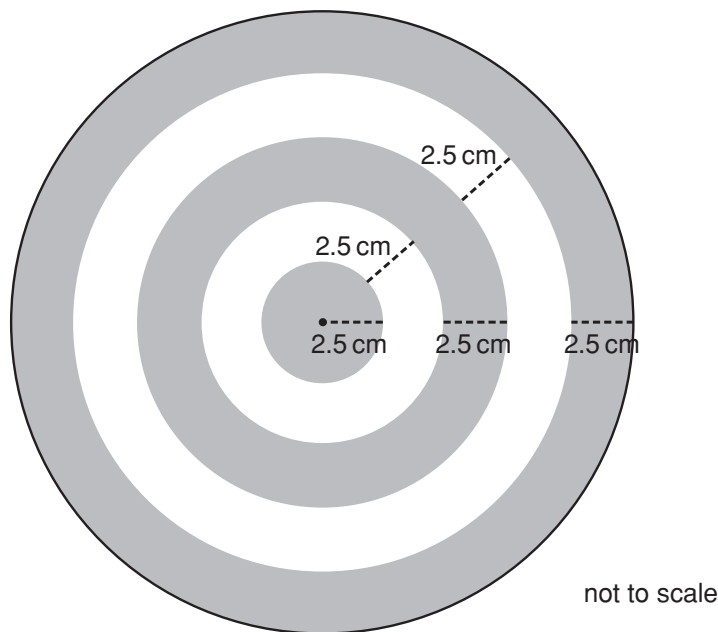
At the end of the year he had \$1050 in the account.

What was the annual percentage interest rate?

 %

29

Seth draws a target as shown.



What is the area of the entire target?

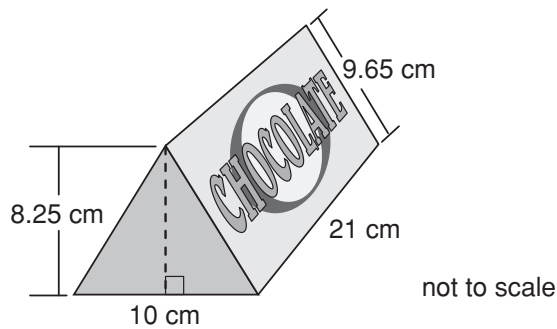
Round your answer to the nearest square centimetre.

 cm²

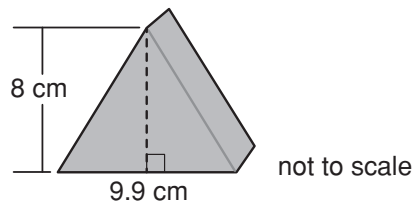


30

The box below contains pieces of chocolate.



Each piece of chocolate is 75 cm^3 in size.



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

31

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

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?



STOP – END OF TEST

Do not turn this page.