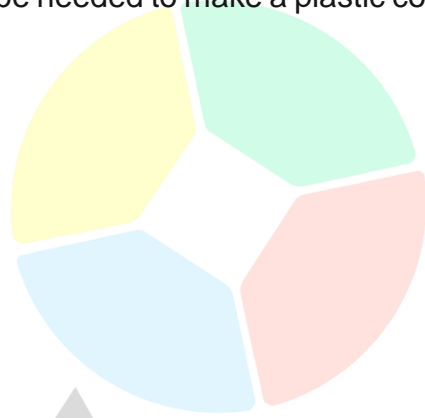


- 1 A thin sheet of plastic is 0.00001 centimetres thick.

How many layers of such a sheet of plastic will be needed to make a plastic coating 0.1 centimetres thick?

- A 100 000 sheets
- B 10 000 sheets
- C 1 000 sheets
- D 100 sheets
- E 10 sheets



- 2 Jane's expenses on petrol during her business trip was 20 cents per kilometre.

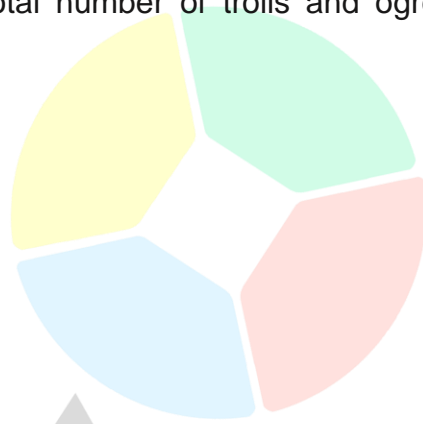
If she spent a total of \$14.40 on petrol during her business trip, how many kilometres did she travel?

- A 28.8 kilometres
- B 36 kilometres
- C 57.6 kilometres
- D 72 kilometres
- E 144 kilometres

- 3 The ratio of the number of trolls to the number of ogres in Gandalf's army is 5 to 4.

Which of the following could **NOT** be the total number of trolls and ogres in Gandalf's army?

- A 450
- B 540
- C 620
- D 756
- E 828



- 4 Robert owns 15 neckties, 40 percent of which are red.

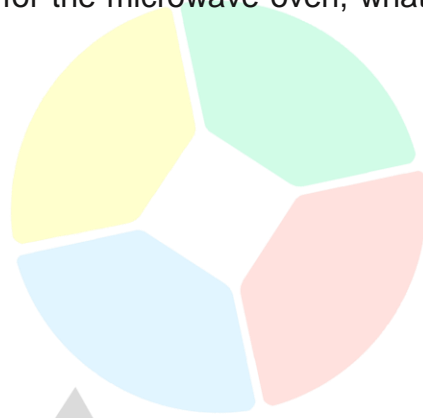
How many of Robert's neckties are **NOT** red?

- A 6 neckties
- B 8 neckties
- C 9 neckties
- D 10 neckties
- E 12 neckties

- 5 Patricia bought a microwave oven at 20 percent off the regular price of \$370.

If the store also offered Patricia a \$26 rebate for the microwave oven, what was the final sale price of the microwave oven?

- A \$238
- B \$240
- C \$263
- D \$270
- E \$325



- 6 An elevator went 7 floors up, then went 10 floors down, and then went 5 floors up.

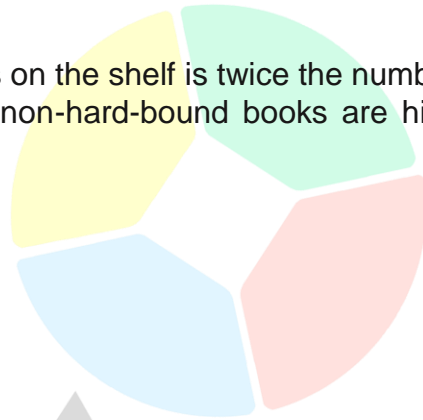
If the elevator was on the x^{th} floor before moving, which of the following gives the current floor of the elevator after moving?

- A $x - 8$
- B $x - 3$
- C $x + 2$
- D $x + 8$
- E $x + 10$

- 7 There are 400 books in a certain bookshelf, 30 percent of which are hard-bound books and, of these, $\frac{1}{5}$ are history books.

If the number of non-hard-bound history books on the shelf is twice the number of hard-bound history books, how many of the non-hard-bound books are history books?

- A 120
- B 48
- C 40
- D 24
- E 20



- 8 A hummingbird can beat its wing 10 times every 4 seconds.

At this rate, how many times can the hummingbird beat its wing in 6 minutes?

- A 900 beats
- B 600 beats
- C 360 beats
- D 240 beats
- E 150 beats

- 9 The old photocopying machine can print 8 000 copies in 2 hours.

The new photocopying machine can work at an average rate that is 50 percent faster than the average rate of the old photocopying machine.

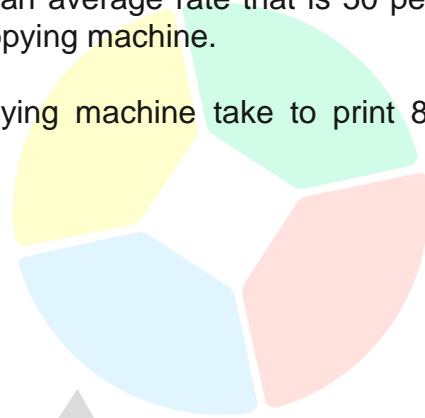
How many minutes does the new photocopying machine take to print 8 000 copies?

- A 40 minutes
- B 60 minutes
- C 80 minutes
- D 96 minutes
- E 180 minutes

- 10 Ten identical nuclear reactors, each working at the same constant rate, can generate 450 megawatts of electricity per minute.

At this rate how many megawatts of electricity can 6 such nuclear reactors generate in 4 minutes?

- A 720 megawatts
- B 1 080 megawatts
- C 2 320 megawatts
- D 10 600 megawatts
- E 64 200 megawatts



- 11 One-half of the marbles in the jar are red, $\frac{1}{5}$ are blue, $\frac{1}{10}$ are green, and the remaining 250 marbles are yellow.

What is the total number of marbles in the jar?

- A 1 000 marbles
- B 1 250 marbles
- C 1 500 marbles
- D 2 000 marbles
- E 2 500 marbles



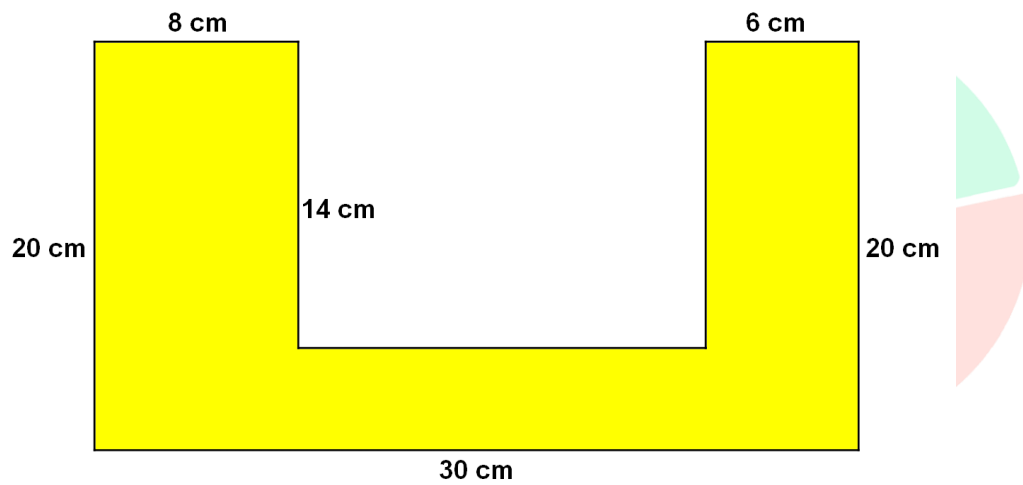
- 12 A group of students, including Andy, are required to make 700 clay pots.

Andy made 25 percent of the needed clay pots, and the other 5 members of the group share the rest equally.

How many clay pots does each of the 5 other members make?

- A 525 clay pots
- B 175 clay pots
- C 140 clay pots
- D 112 clay pots
- E 105 clay pots

13 In the figure below, all intersecting line segments are perpendicular.



What is the area of the figure?

- A 186 square centimetres
- B 224 square centimetres
- C 376 square centimetres
- D 460 square centimetres
- E 600 square centimetres

- 14** The average (arithmetic mean) of **P** and **Q** is 50 and the average of **Q** and **R** is 75.

What is the value of **R – P**?

- A** 25
- B** 30
- C** 45
- D** 50
- E** It cannot be determined.



- 15** Denver bought a watch at a 20 percent discount on the original price.

Then, he sold the watch for \$600 more than the original price and earned a 50 percent profit.

What was the original price of the watch? (Profit = Revenue – Expenses)

- A** \$1 000
- B** \$1 800
- C** \$2 800
- D** \$3 000
- E** \$3 200

- 16** Andrew, Ben, and David are collecting stamps.

Andrew has twice as many stamps in his collection as Ben.

David has 100 fewer stamps than twice the sum of the number of stamps that Andrew and Ben have in their collection.

If David were to give 150 stamps to Ben and 50 stamps to Andrew, then Ben and Andrew would each have half the number of stamps that David had originally.

How many stamps did Ben have originally?

- A** 100 stamps
- B** 150 stamps
- C** 200 stamps
- D** 250 stamps
- E** 500 stamps

- 17** The number of marbles in a jar could be evenly divided into 10, 12, or 16 groups.

What is the least possible number of marbles in the jar?

- A** 120 marbles
- B** 160 marbles
- C** 240 marbles
- D** 320 marbles
- E** 480 marbles

- 18** Three-fourths of all the students in Mr. Romero's class are girls and $\frac{1}{3}$ of all the girl students are with blue eyes.

What fraction of the students in Mr. Romero's class are girls that do not have blue eyes?

A $\frac{1}{4}$

B $\frac{5}{12}$

C $\frac{1}{2}$

D $\frac{7}{12}$

E $\frac{5}{6}$



- 19** The degree measures of the interior angles of a triangle are in the ratio of 10:13:13.

What is the degree measure of the smallest interior angle?

A 50°

B 60°

C 65°

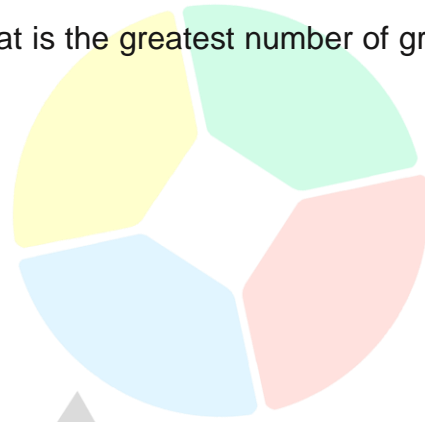
D 70°

E 75°

- 20** Students will be divided into groups such that the ratio of the number of boys to the number of girls is the same in each group.

If there are a total of 15 boys and 85 girls, what is the greatest number of groups that can be formed using all the students?

- A** 3 groups
- B** 5 groups
- C** 8 groups
- D** 10 groups
- E** 13 groups



- 21** A rectangular solid has a volume of 2 cubic metres.

If the length of the solid is 4 metres and the width is $\frac{1}{4}$ of a metre, what is the height of the rectangular solid?

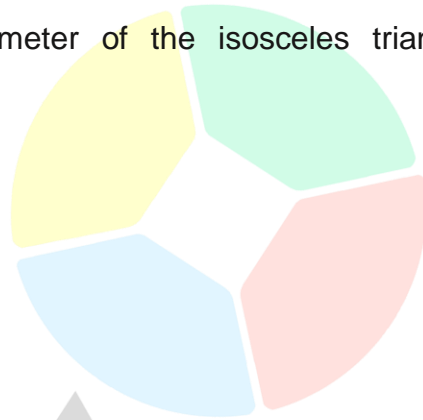
- A** $\frac{1}{8}$ of a metre
- B** $\frac{1}{4}$ of a metre
- C** 1 metre
- D** 2 metres
- E** 4 metres

- 22** The lengths of the two sides of an isosceles triangle are 6 centimetres and 9 centimetres, respectively.

Which of the following could be the perimeter of the isosceles triangle?

- I. 21 centimetres
- II. 24 centimetres
- III. 27 centimetres

- A** I only
- B** II only
- C** I and II only
- D** II and III only
- E** I, II, and III



- 23** Tom bought a jet ski at a discounted price that was 25 percent less than the original price.

If the discounted price of the jet ski was \$21 000, what was the original price of the jet ski?

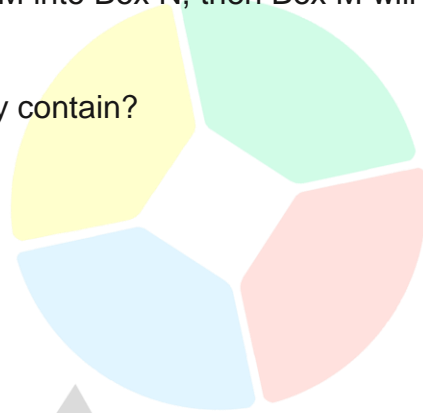
- A** \$20 000
- B** \$24 000
- C** \$25 000
- D** \$28 000
- E** \$30 000

- 24 Box M contains 450 more grams of flour than Box N.

If 100 grams of flour are transferred from Box M into Box N, then Box M will have twice as much flour as Box N.

How many grams of flour does Box M currently contain?

- A 500 grams
- B 600 grams
- C 700 grams
- D 800 grams
- E 900 grams

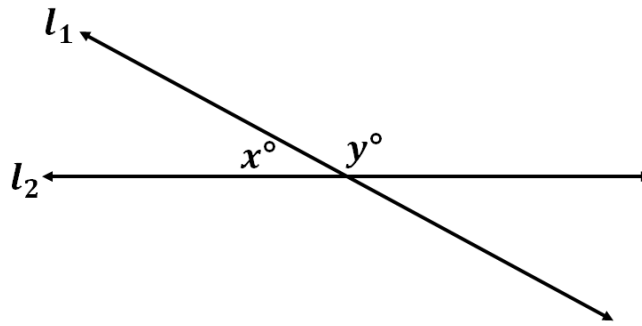


- 25 All the coins in the bag either have a mass of 5 grams or 9 grams only.

Which of the following could **NOT** be the total mass of all the coins in the bag?

- A 19 grams
- B 22 grams
- C 23 grams
- D 24 grams
- E 28 grams

- 26 In the figure below, lines l_1 intersects line l_2 .



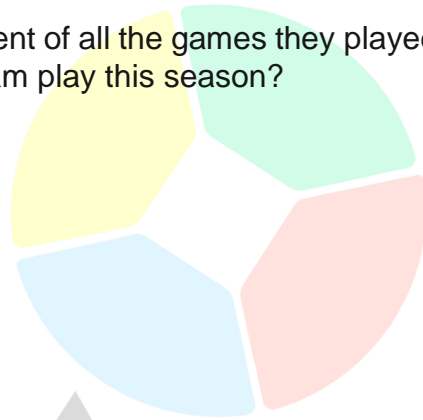
If the ratio of the degree measures of x° and y° is 1 to 7, what is the degree measure of y° ?

- A 148.5°
 - B 150°
 - C 152.5°
 - D 154°
 - E 157.5°
- 27 According to a study, 96 out of every 100 million bacteria in a certain culture will develop a specific mutation.
- How many bacteria in a culture containing 3 billion bacteria will develop a specific mutation?
- A 288 bacteria
 - B 320 bacteria
 - C 2 880 bacteria
 - D 3 200 bacteria
 - E 28 800 bacteria

- 28** The baseball team has won 40 percent of the first 25 games they played this season and won 80 percent of the remaining games this season.

If the baseball team ended up winning 60 percent of all the games they played this season, how many games did the baseball team play this season?

- A** 25 games
- B** 50 games
- C** 55 games
- D** 60 games
- E** 65 games



- 29** Ruben needs to paint a boardwalk that measures 1 200 square metres.

If the paint is sold only by the litre and 2 litres of paint can cover an area of 450 square metres, what is the least number of litres of paint that Ruben must purchase to have enough paint to cover the entire boardwalk?

- A** 2 litres
- B** 3 litres
- C** 4 litres
- D** 5 litres
- E** 6 litres

- 30** The carrot garden is 8 metres wide and has an area equal to the area of the cabbage garden that is 4 metres wide and 24 metres long.

What is the perimeter of the carrot garden?

- A** 20 metres
- B** 24 metres
- C** 40 metres
- D** 48 metres
- E** 96 metres



Scholarly