

- 1 Jenny has a coin purse containing 5-cent coins and 10-cent coins only.

The total value of the coins in Jenny's coin purse is \$3.50.

If all the 5-cent coins were to be replaced with 10-cent coins, and all the 10-cent coins were to be replaced with 5-cent coins, then the total value of the coins will be \$4.30.

How many coins were there in Jenny's coin purse?

- A 18 coins
- B 34 coins
- C 52 coins
- D 56 coins
- E 60 coins

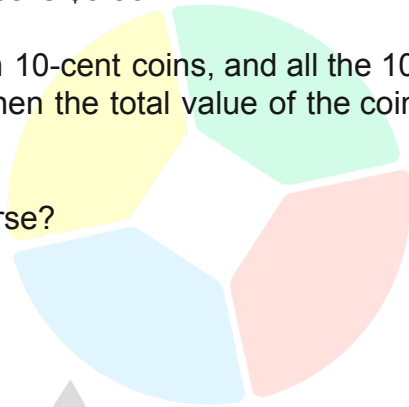
- 2 Jake was weighing the mass of 6 rocks for a science experiment.

The average (arithmetic mean) mass of the 6 rocks was 400 grams.

Jake's teacher gave him 2 additional rocks to weigh, and the average mass of all 8 rocks was 425 grams.

What was the average mass of the 2 additional rocks that Jake's teacher gave him?

- A 350 grams
- B 425 grams
- C 450 grams
- D 475 grams
- E 500 grams



- 3 Aaron, Jake, and Mark went to the hardware store last week.

Aaron bought a flashlight and two screwdrivers for \$105.

Jake bought two flashlights and a screwdriver for \$135.

If Mark only bought one screwdriver, how much did Mark pay for the screwdriver?

- A \$20
- B \$25
- C \$30
- D \$35
- E \$40

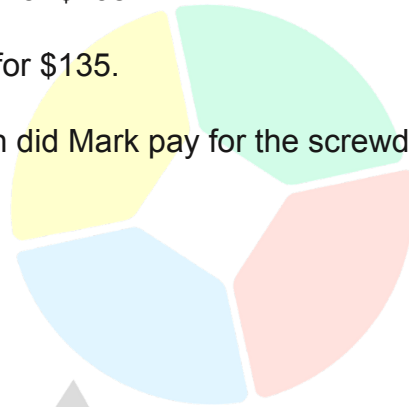
- 4 Roy took a math test and a science test, where each test had 40 questions.

Roy needed to correctly answer 70 percent of the questions in each test in order to pass.

Roy passed the math test by correctly answering the minimum required number of questions.

If he correctly answered 3 more questions in the math test than in the science test, how many questions in the science test did he answer incorrectly?

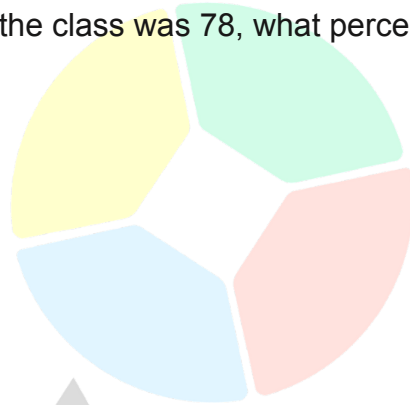
- A 10 questions
- B 15 questions
- C 20 questions
- D 25 questions
- E 30 questions



- 5 The average (arithmetic mean) test score of all the boys in the class was 83, which was 20 more than the average test score of all the girls in the class.

If the average test score of all the students in the class was 78, what percentage of the students in the class were boys?

- A 60 percent
- B 65 percent
- C 70 percent
- D 75 percent
- E 80 percent

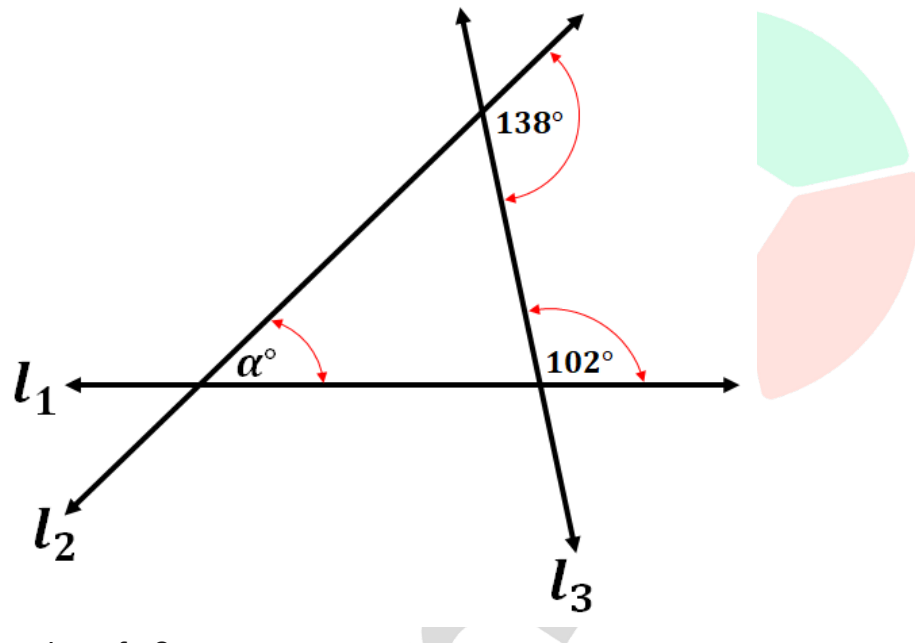


- 6 It took Maria exactly 9 minutes 20 seconds to fold 14 table napkins.

At this rate, how long will it take Maria to fold 20 table napkins?

- A 11 minutes
- B 12 minutes 10 seconds
- C 12 minutes 40 seconds
- D 13 minutes
- E 13 minutes 20 seconds

- 7 The figure below shows three lines, l_1 , l_2 , and l_3 , intersect to form a triangle.



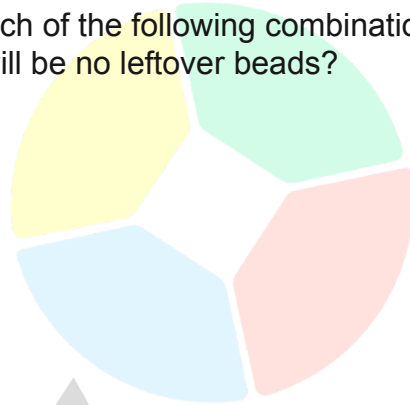
What is the value of α ?

- A 42
- B 54
- C 60
- D 66
- E 78

- 8 Mindy needs exactly 4 large packs of beads or exactly 6 small packs of beads to make one necklace.

If Mindy needs to make 4 such necklaces, which of the following combinations of packs of beads will she need such that there will be no leftover beads?

- A 2 large packs and 24 small packs
- B 4 large packs and 18 small packs
- C 6 large packs and 16 small packs
- D 8 large packs and 8 small packs
- E 12 large packs and 12 small packs



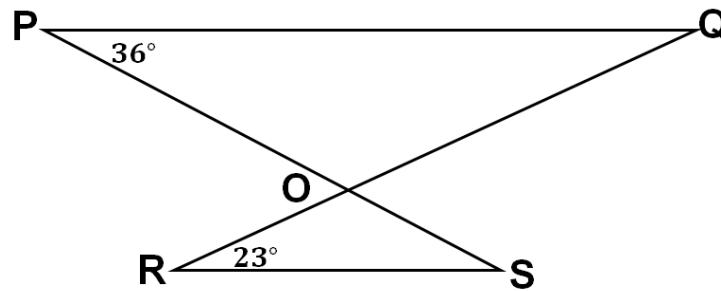
- 9 A telephone company charges \$3 for every long-distance call plus 45 cents per minute for the length of the long-distance call.

Last month, Ruby made 10 long-distance calls, half of which lasted exactly 1 minute and the rest lasted exactly 3 minutes.

How much did Ruby pay for the 10 long-distance calls she made last month?

- A \$27
- B \$30
- C \$33
- D \$36
- E \$39

10



In the figure above, **PQ** is parallel to **RS**, and **PS** intersects **QR** at **O**.

What is the degree measure of angle **POQ**?

- A 108°
- B 113°
- C 117°
- D 121°
- E 127°

- 11 The hypotenuse of a right triangle measures 26 centimetres and one of the legs measures 10 centimetres.

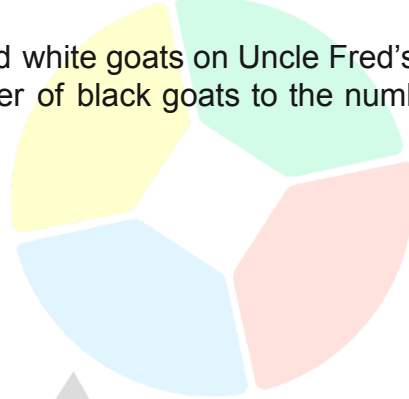
If the area of the right triangle is 120 square centimetres, what is the length of the other leg of the right triangle?

- A 26 centimetres
- B 24 centimetres
- C 13 centimetres
- D 12 centimetres
- E 6 centimetres

- 12** The average (arithmetic mean) height of all the black goats on Uncle Fred's farm is 0.6 metres and the average height of all the white goats is 0.72 metres.

If the average height of all the black goats and white goats on Uncle Fred's farm is 0.68 metres, what is the ratio of the number of black goats to the number of white goats on Uncle Fred's farm?

- A** 1 to 2
- B** 2 to 3
- C** 3 to 4
- D** 4 to 5
- E** It cannot be determined.



- 13** During the sale, a customer can buy bags for \$22 each or buy 3 bags for \$55.

Also, a customer who spends \$100 or more gets an additional 10 percent discount on the total cost.

If Miriam bought 8 bags during the sale, how much did she pay for the bags she bought?

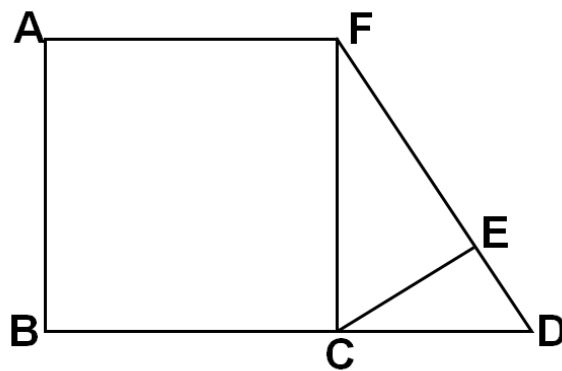
- A** \$136.80
- B** \$138.60
- C** \$154.00
- D** \$158.40
- E** \$176.00

14 If 32 of the 80 balls in the jar are red, what percentage of the balls in the jar are red?

- A 4 percent
- B 16 percent
- C 24 percent
- D 32 percent
- E 40 percent



15

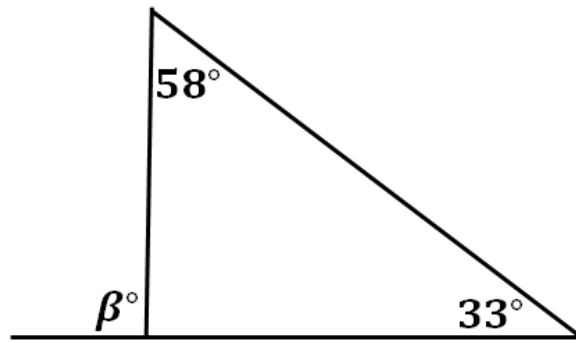


In the figure above, **ABCF** is a square with an area of 36 square centimetres, and **ABDF** is a trapezium with an area of 48 square centimetres.

What is the length of the line **CD**?

- A 2 centimetres
- B 4 centimetres
- C 5 centimetres
- D 6 centimetres
- E It cannot be determined.

16



In the figure above, what is the value of β ?

- A 87
- B 89
- C 90
- D 91
- E 93

17 Jenny is currently twice as old as Ruben.

Eight years ago, Jenny was 6 years younger than thrice Ruben's age.

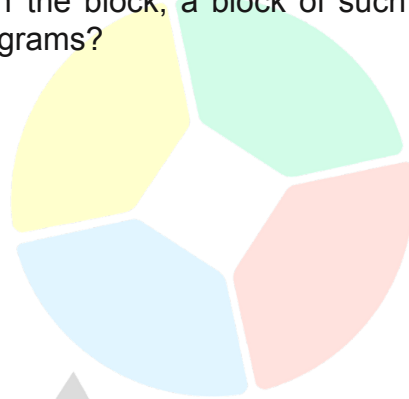
How old will Jenny be 10 years from today?

- A 27 years old
- B 32 years old
- C 37 years old
- D 54 years old
- E 59 years old

- 18** A solid block of ice $11\frac{1}{4}$ metres long has a mass of 42.75 kilograms.

If the mass of the ice is evenly distributed in the block, a block of such ice 6 metres long will have a mass of how many kilograms?

- A** $22\frac{4}{5}$ kilograms
- B** $25\frac{3}{5}$ kilograms
- C** $26\frac{1}{2}$ kilograms
- D** $27\frac{1}{2}$ kilograms
- E** 28 kilograms



- 19** A triangle has a perimeter of 36 centimetres.

Which of the following could be the length of one of the sides of the triangle?

- I. 15 centimetres
- II. 18 centimetres
- III. 21 centimetres

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

- 20 A water container shaped like a cube is partially filled with water.

Ben immersed a Rubik's cube inside the water container, and the water level in the water container rose by 5 centimetres.

If each of the edges of the water container was 40 centimetres long, what is the length of the edges of the Rubik's cube?

- A 5 centimetres
- B 10 centimetres
- C 15 centimetres
- D 20 centimetres
- E It cannot be determined

- 21 Tom works as a clay figurine painter.

The table below shows the number of days Tom worked in each of the last three months.

MONTH	FIGURINES PAINTED
January	20
February	17
March	19

The number of figurines Tom painted each month was proportional to the number of days he worked in that month.

If Tom painted 57 figurines last March, what was the total number of figurines he painted during the three months shown in the table?

- A 180 figurines
- B 171 figurines
- C 168 figurines
- D 153 figurines
- E 150 figurines

- 22** Jessa, working at a constant rate, can make 9 bracelets every 3 minutes, and Roma, working at a constant rate, can make 10 bracelets every 2 minutes.

If the two of them work together at their respective constant rates, how many minutes will it take to make 56 bracelets?

- A** 7 minutes
- B** 6 minutes
- C** 5 minutes
- D** 4 minutes
- E** 3 minutes

- 23** A mirror reflects 90 percent of the light that hits its surface.

A filter placed at an angle from the mirror absorbs 40 percent of the reflected light.

What percentage of the light that hits the surface of the mirror is reflected and not absorbed by the filter?

- A** 90 percent
- B** 60 percent
- C** 54 percent
- D** 40 percent
- E** 36 percent

- 24** It takes 40 hours for 18 identical machines, each working at the same constant rate and running non-stop, to make 36 500 widgets.

How many fewer hours will it take for 24 such machines, each working at the same constant rate and running non-stop, to make 36 500 widgets?

- A** 10 hours
- B** 13 hours
- C** 16 hours
- D** 26 hours
- E** 30 hours

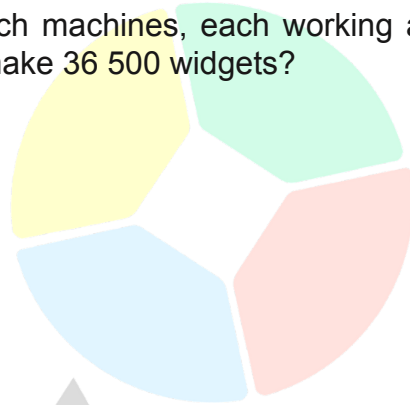
- 25** Veronica mixed brown sugar and white sugar in a ratio of 3:2 to create a 20-kilogram sugar mixture.

Then, Veronica removed 10 kilograms of the mixture and replaced it with 10 kilograms of brown sugar.

She again removed 10 kilograms of the mixture and replaced it with 10 kilograms of brown sugar.

What is the ratio of the amount of brown sugar to the amount of white sugar in the resulting mixture?

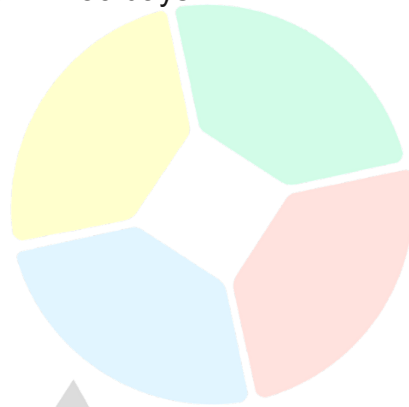
- A** 9 to 1
- B** 17 to 3
- C** 5 to 3
- D** 3 to 17
- E** 1 to 9



- 26** Eight identical machines can burn 80 litres of oil in 24 days.

How many litres of oil will 36 such machines burn in 30 days?

- A** 350 litres
- B** 400 litres
- C** 425 litres
- D** 450 litres
- E** 460 litres



- 27** All six faces of a large solid cube are painted black.

The large solid cube is then cut into several identical smaller cubes.

If none of the faces in exactly 27 of the smaller cubes that make up the large cube was painted black, into how many smaller cubes was the large cube cut?

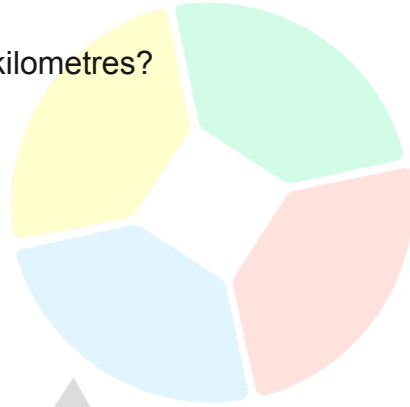
- A** 120 smaller cubes
- B** 125 smaller cubes
- C** 135 smaller cubes
- D** 145 smaller cubes
- E** 150 smaller cubes

- 28** Douglas rides his bike at a rate of 10 kilometres per hour.

After every 10 kilometres of biking, Douglas takes a break for 12 minutes.

How much time will it take Douglas to bike 60 kilometres?

- A** 240 minutes
- B** 300 minutes
- C** 360 minutes
- D** 420 minutes
- E** 480 minutes



- 29** The area of a quadrilateral is 49 square metres.

Which of the following could be the least possible perimeter of the quadrilateral?

- A** 6 metres
- B** 12 metres
- C** 14 metres
- D** 24 metres
- E** 28 metres

- 30** It takes 8 days for 5 identical machines, each running non-stop for 7 hours a day, to complete an order of 1 500 widgets.

If 2 additional machines are added, how many hours per day must each of the machines run non-stop to complete an order of 1 500 widgets in 4 days?

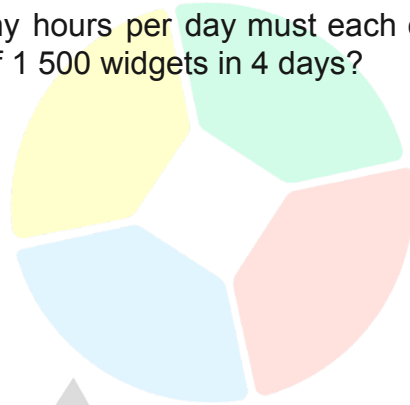
- A** 8 hours
- B** 9 hours
- C** 10 hours
- D** 11 hours
- E** 12 hours

- 31** Three jars, a small, a medium, and a large jar, contain a total of 1 020 marbles.

The small jar contains 204 marbles, and the medium and large jars contain the same number of marbles.

What is the ratio of the number of marbles in the large jar to the number of marbles in the small jar?

- A** 1 to 3
- B** 1 to 2
- C** 2 to 1
- D** 3 to 1
- E** 4 to 1



- 32** Box A and Box B contain a total of 6 000 tokens.

Thirty percent of the tokens in Box A are black and 60 percent of the tokens in Box B are black.

If 40 percent of all the tokens in the two boxes are black, how many tokens are there in Box B?

- A** 1 000 tokens
- B** 2 000 tokens
- C** 3 000 tokens
- D** 4 000 tokens
- E** 5 000 tokens



- 33** The sum of the current ages of Fred and Irma is 48.

Three years from today, Fred will be four times as old as Irma was last year.

How old is Irma today?

- A** 9 years old
- B** 10 years old
- C** 11 years old
- D** 12 years old
- E** 13 years old

- 34** A quarter of a kilogram of beans costs 60 cents.

How much will 600 grams of beans cost?

- A** \$1.44
- B** \$1.62
- C** \$1.68
- D** \$2.16
- E** \$2.22



- 35** If it takes one hour to fill a water tanker to $\frac{4}{9}$ of its capacity, how much more time will it take to fill the water tanker?

- A** 48 minutes
- B** 1 hour
- C** 1 hour 15 minutes
- D** 2 hours 15 minutes
- E** 2 hours 30 minutes