

- 1 The number of people lining up waiting to buy tickets for the Comic-Con doubles every hour.

At 2:00 PM, there were 80 people in line waiting to buy tickets for the Comic Con.

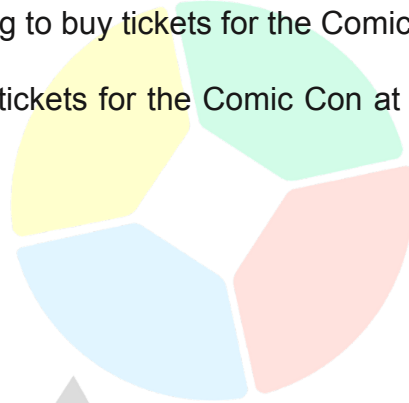
How many people were in line waiting to buy tickets for the Comic Con at 10:00 AM earlier that day?

- A 2 people
- B 5 people
- C 10 people
- D 20 people
- E 40 people

- 2 The experiment started at 9:30 AM, and it was observed that the number of bacteria in the culture doubles every 30 minutes.

At what time will the number of bacteria in the culture be 1 500 percent greater than the number of bacteria in the culture at the start of the experiment?

- A 10:30 AM
- B 11:00 AM
- C 11:30 AM
- D 12:00 PM
- E 12:30 PM



- 3 A water tank can be filled by an inlet pipe in 3 hours and can be completely drained by an outlet pipe in 6 hours.

If both inlet pipe and outlet pipes are opened at 10:00 AM, at what time will the water tank be filled?

- A 2:00 PM
- B 2:30 PM
- C 3:00 PM
- D 3:30 PM
- E 4:00 PM

- 4 George lives 145 kilometres from Peter.

At 2:30 PM, George left his house and headed towards Peter's house at a constant speed of 20 kilometres per hour.

At 3:00 PM, Peter left his house and headed towards George's house, taking the same highway as George, at a constant speed of 25 kilometres per hour.

At what time will the two of them meet on the highway?

- A 6:00 PM
- B 6:20 PM
- C 6:30 PM
- D 6:40 PM
- E 6:50 PM



- 5** If March 31, 2016 falls on a Thursday, on what day of the week was January 1, 2013?

A Monday
B Tuesday
C Wednesday
D Thursday
E Friday



- 6** A certain species of bacteria doubles in number every 2 hours.

If an experiment with this species of bacteria started with just one bacterium in the culture, then it will take 60 hours before the culture will be fully covered with bacteria.

If an experiment with this species of bacteria started with two bacteria in the culture, how many hours will it take before the culture is fully covered with bacteria?

A 15 hours
B 28 hours
C 30 hours
D 58 hours
E 59 hours

- 7** A machine started working on the task at exactly 10:30 AM.

By 1:10 PM, the machine has already completed one-third of the task.

At what time will the machine complete the task?

- A** 3:50 PM
- B** 5:00 PM
- C** 5:30 PM
- D** 6:30 PM
- E** 7:50 PM



- 8** Mark's clock is broken and is losing 2 seconds every 5 minutes.

The last time that Mark's clock was showing the correct time was at 7:00 AM this morning.

What will be the time shown on Mark's clock at 5:00 PM today?

- A** 4:26 PM
- B** 4:28 PM
- C** 4:30 PM
- D** 4:53 PM
- E** 4:56 PM

- 9** One inlet pipe can fill an empty swimming pool to one-third of its capacity in 3 hours.

A second inlet pipe can fill the empty swimming pool to three-fourths of its capacity in $4\frac{1}{2}$ hours.

If both pipes are opened simultaneously at exactly 7:00 AM, at what time will it take both pipes to fill the empty swimming pool?

- A** 11:36 AM
- B** 11:15 AM
- C** 10:45 AM
- D** 10:36 AM
- E** 10:15 AM

- 10** If October 1, 1982 fell on a Friday, on what day of the week did October 1, 1987 fall? (Note: It was a leap year in 1984.)

- A** Sunday
- B** Monday
- C** Tuesday
- D** Wednesday
- E** Thursday

- 11** Gene can paint a wall in 2 hours while Jeremy can paint the same wall in 1 hour 15 minutes.

Gene started painting the wall at 8:30 AM, and then Jeremy help him at 9:00 AM.

To the nearest minute, at what time will the two of them finish painting the wall?

- A** 9:05 AM
- B** 9:20 AM
- C** 9:35 AM
- D** 9:55 AM
- E** 10:25 AM

- 12** Andrew started cleaning his garage at 3:20 PM.

By 4:20 PM, he had finished cleaning three-fourths of his garage.

At what time will he be able to finish cleaning his garage?

- A** 4:30 PM
- B** 4:35 PM
- C** 4:40 PM
- D** 4:50 PM
- E** 5:00 PM

- 13** If Cory, working alone at a constant rate, started making 50 widgets at 8:00 AM, he will finish by 8:30 AM.

If Cory and Matthew, working together at their respective constant rates, started making 50 widgets at 9:00 AM, they will finish by 9:20 AM.

If Matthew, working alone at his constant rate, started making 50 widgets at 10:00 AM, at what time will he finish?

- A** 10:30 AM
- B** 10:45 AM
- C** 11:00 AM
- D** 11:30 AM
- E** 12:00 PM

- 14** An aeroplane leaves Tinseltown at 10:30 AM, local time, and reaches Greenville at 2:30 AM, local time.

The same aeroplane leaves Greenville at 4:30 PM, local time, and reaches Tinseltown at 4:30 AM, local time.

If the aeroplane takes the same route on both flights and at the same speed, what is the time difference between the local times of Tinseltown and Greenville?

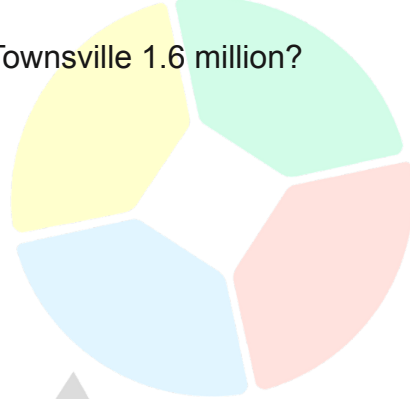
- A** 1 hour 30 minutes
- B** 2 hours
- C** 2 hours 30 minutes
- D** 3 hours
- E** 3 hours 30 minutes

- 15** The population of the City of Townsville increases by 50 percent every 50 years.

The City of Townsville has a population of 8.1 million in 2000.

In what year was the population of the City of Townsville 1.6 million?

- A** 1700
- B** 1750
- C** 1800
- D** 1850
- E** 1900



- 16** October 31st, Halloween, fell on a Wednesday in 2001.

On what day of the week did Halloween fall in 2014? (Note: 2004, 2008, and 2012 are leap years, and thus, had 366 days in a year.)

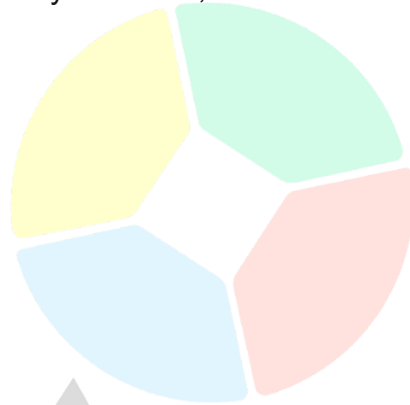
- A** Monday
- B** Tuesday
- C** Wednesday
- D** Thursday
- E** Friday

- 17** A water pump started filling an empty water tank at a constant rate.

By noon, the water tank was one-third full, and by 1:15 PM, the water tank was three-fourths full.

At what time will the water tank be full?

- A** 2:00 PM
- B** 2:15 PM
- C** 2:30 PM
- D** 2:45 PM
- E** 3:00 PM



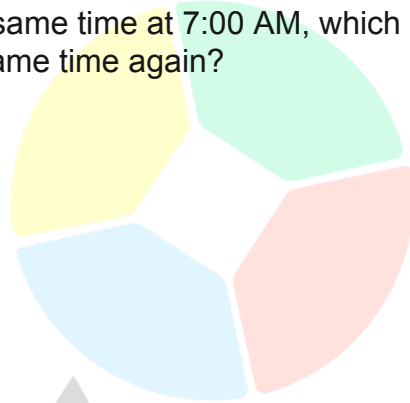
- 18** What fraction of an hour had elapsed between 6:55 AM and 7:19 AM?

- A** $\frac{2}{5}$
- B** $\frac{7}{30}$
- C** $\frac{17}{30}$
- D** $\frac{1}{6}$
- E** $\frac{1}{4}$

- 19** The red light flashes once every 9 minutes and the yellow light flashes once every 24 minutes.

If the red light and the yellow light flash at the same time at 7:00 AM, which of the following times will the two lights flash at the same time again?

- A** 7:35 AM
- B** 8:16 AM
- C** 9:36 AM
- D** 11:48 AM
- E** 12:00 PM



- 20** Joan goes to the supermarket every 3 days and Nina goes to the same supermarket every 4 days.

If the two of them both went to the supermarket on Monday, what day of the week will it be when the two of them will both go to the supermarket again?

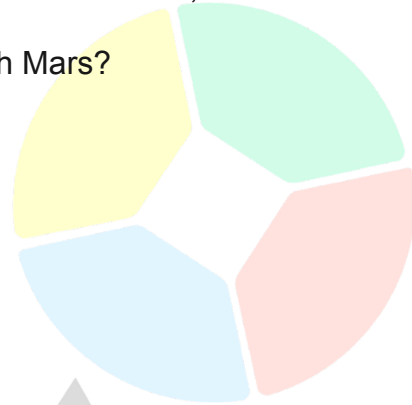
- A** Wednesday
- B** Thursday
- C** Friday
- D** Saturday
- E** Sunday

21 The next mission to Mars is scheduled to launch on Friday, June 18, 2032.

It is expected to reach Mars 919 days later on December 24, 2034.

On what day of the week is it expected to reach Mars?

- A** Friday
- B** Saturday
- C** Sunday
- D** Monday
- E** Tuesday



22 If yesterday was Sunday, what day of the week will it be 347 days from today?

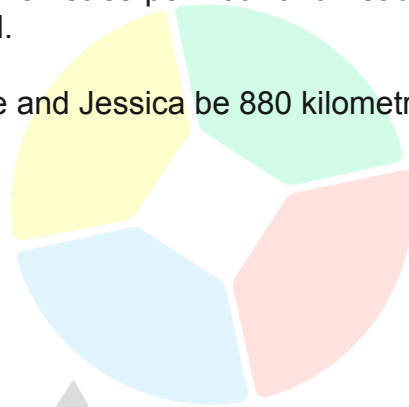
- A** Monday
- B** Tuesday
- C** Wednesday
- D** Thursday
- E** Friday

- 23** Caroline left the library, travelling at 50 kilometres per hour, at 10:00 AM.

Jessica left the same library, travelling at 70 kilometres per hour and heading in the opposite direction as Caroline, at 12:00 PM.

At what time will the distance between Caroline and Jessica be 880 kilometres?

- A** 5:15 PM
- B** 5:30 PM
- C** 5:45 PM
- D** 6:00 PM
- E** 6:30 PM



- 24** Robert's digital clock was defective.

It loses one minute every 3 hours during the first four days and gains 1 percent in the next 6 days.

Robert set the time on the digital clock right on 8:00 AM on Monday.

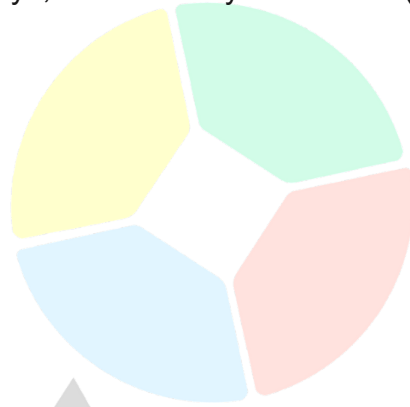
To the nearest minute, what time will the digital clock show at the end of 10 days?

- A** 8:54 AM
- B** 8:56 AM
- C** 8:58 AM
- D** 9:06 AM
- E** 9:16 AM

25 January 1st, 2012 falls on a Sunday.

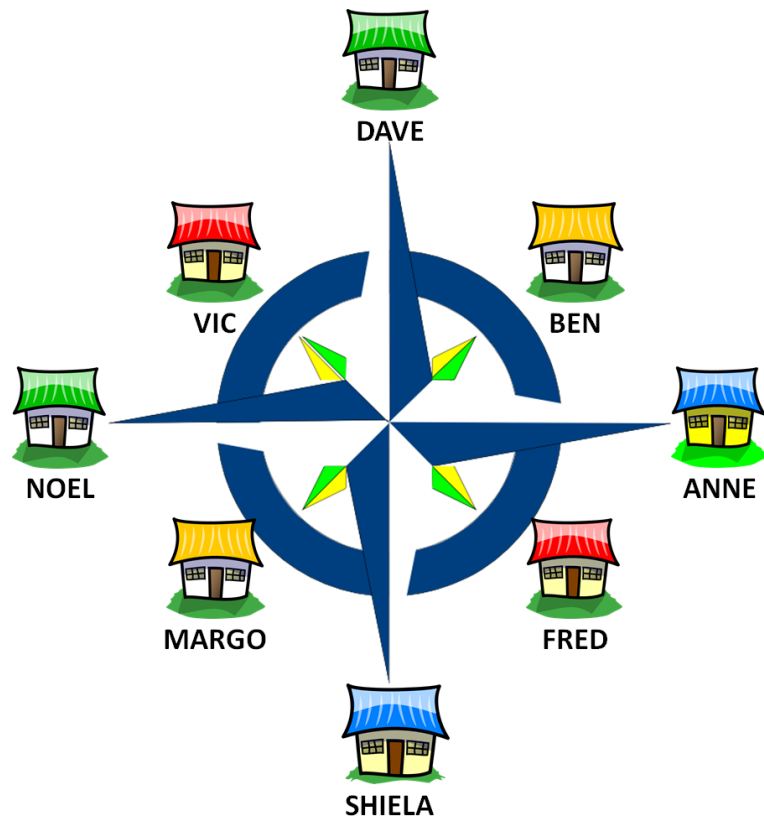
What is the total number of Saturdays, Sundays, and Mondays in 2012? (Note: The year 2012 is a leap year.)

- A** 155 days
- B** 156 days
- C** 157 days
- D** 158 days
- E** 159 days



Scholarly

26 The figure below shows the locations of the houses of eight friends.

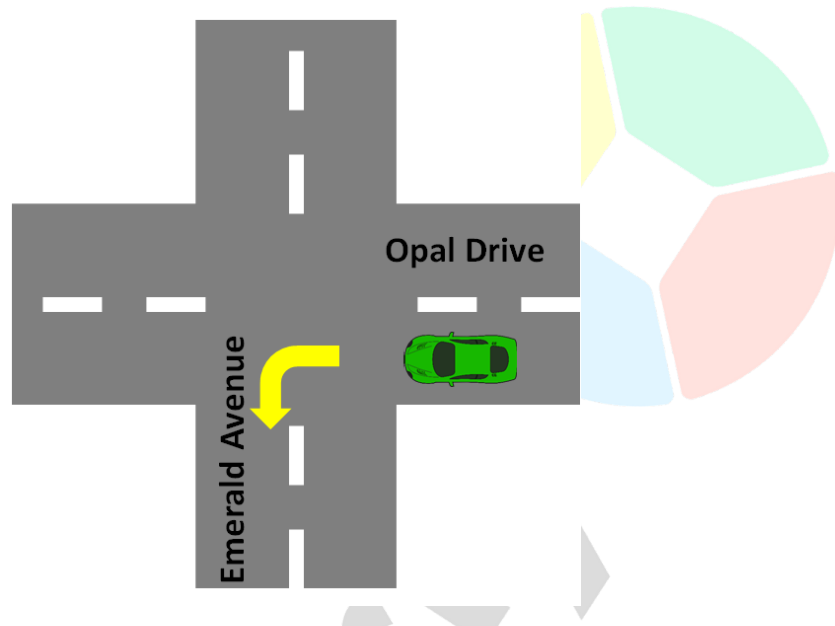


Ben's house is located in the southwest direction.

Whose house is located in the north direction?

- A Vic
- B Shiela
- C Noel
- D Dave
- E Anne

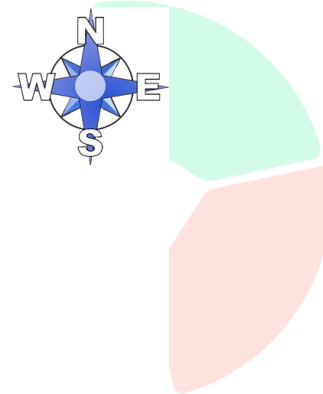
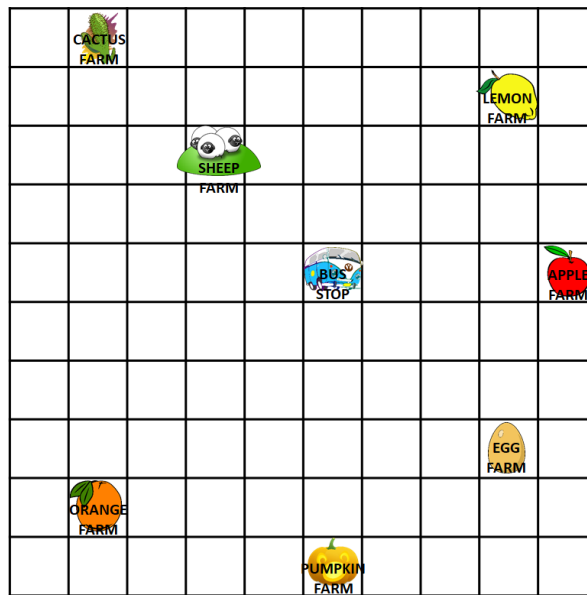
- 27** A car is travelling along Opal Drive heading in the northeast direction when it took a turn towards Emerald Avenue, as shown in the picture.



In which direction was the car travelling after it made the turn?

- A** South-East
- B** North
- C** South-West
- D** West
- E** North-West

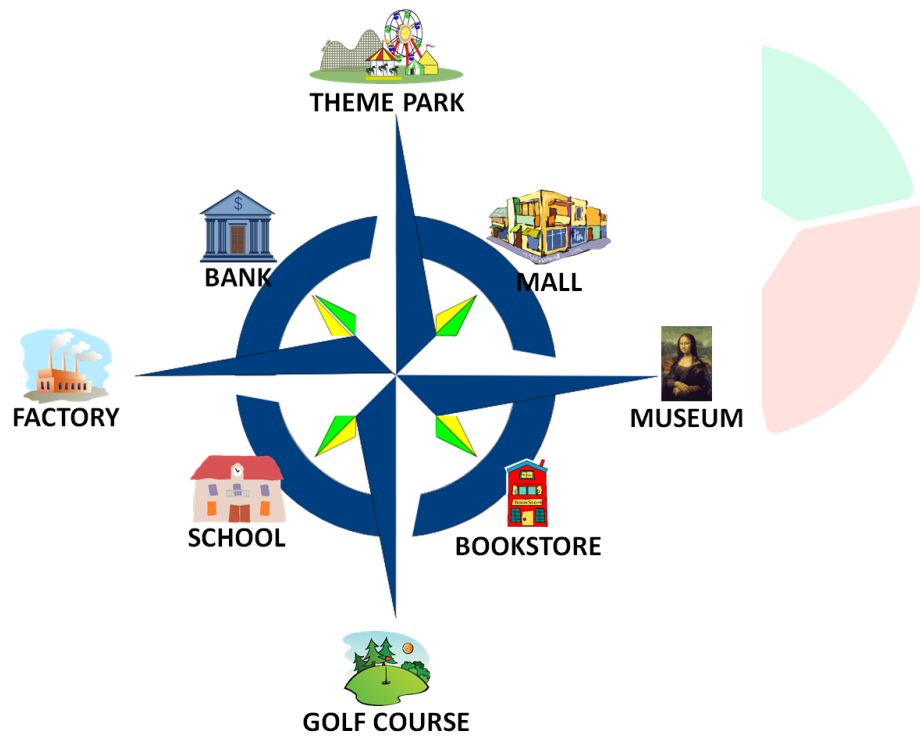
- 28 The figure below shows the locations of the bus stops and the surrounding farms around the bus stop.



If a worker will take some of the goods from the egg farm to the bus stop, in which direction should the worker go?

- A North
- B West
- C East
- D North-West
- E North-east

29 The figure below shows some of the locations in the town of Autumnville.

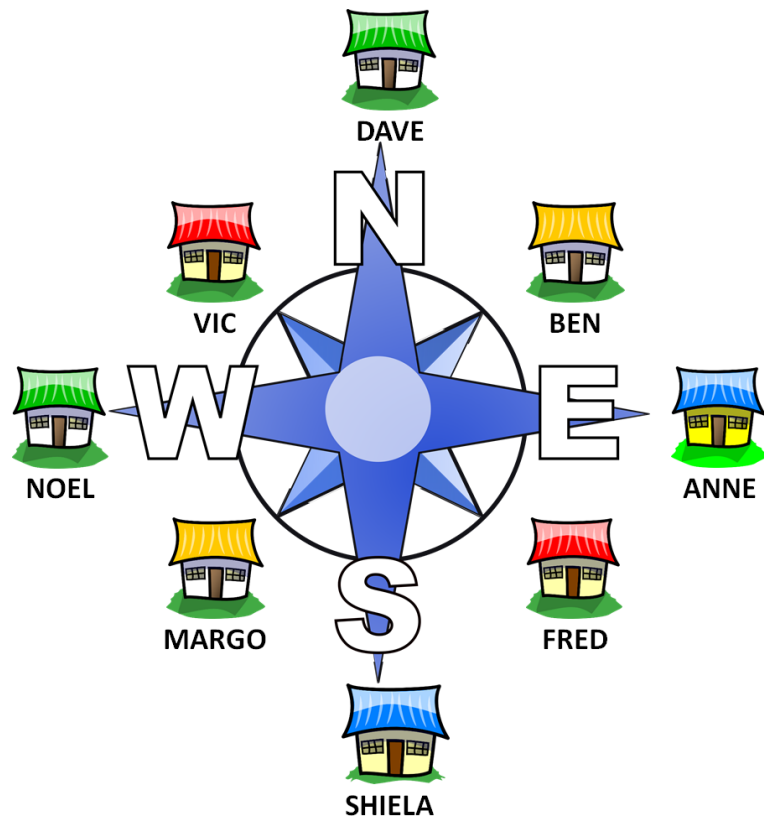


Lea is looking at the mall facing the east direction.

If she wants to face the north direction, which location should she be looking at?

- A Bank
- B Bookstore
- C Museum
- D School
- E Theme park

30 The figure below shows some of the locations of the houses of eight friends.



Caroline was facing Margo's house before she took three quarter turns anti-clockwise and then one half turn clockwise.

In what direction was she facing now?

- A North-West
- B West
- C South-East
- D East
- E North-East

- 31** An oil tanker left New Port City at 8:53 AM and travelled 240 kilometres to Fairmont City at an average speed of 50 kilometres per hour.

At what time will it arrive at Fairmont City?

- A 1:31 PM
- B 1:41 PM
- C 1:51 PM
- D 2:01 PM
- E 2:10 PM



- 32** Andrea and Jane leave the mall at 2:20 PM and head in the same direction.

Andrea travels at 30 kilometres per hour and Jane travels at 40 kilometres per hour.

After 6 hours, Jane stops at a gas station.

At what time will Andrea arrive at the gas station?

- A 10:20 PM
- B 10:30 PM
- C 10:40 PM
- D 10:50 PM
- E 11:00 PM

- 33** At 9:30 AM, Amy started folding table napkins at a constant rate of 12 table napkins per hour.

Half an hour later, Beth joined her and started folding table napkins at a constant rate of 15 table napkins per hour.

At what time will the two of them fold the same number of table napkins?

- A 1:00 PM
- B 3:00 PM
- C 7:00 PM
- D 9:00 PM
- E 12:00 PM

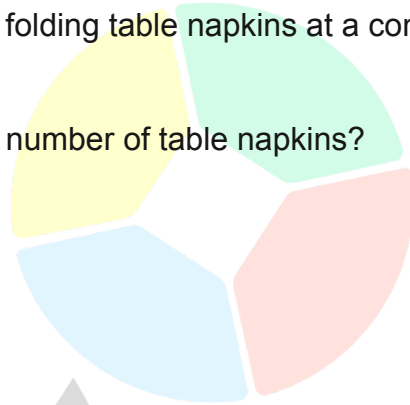
- 34** Two trains left the Central Station and travelled on parallel train tracks heading in the same direction.

The first train left the Central Station at 1:00 PM at a constant speed of 40 kilometres per hour.

The second train left the Central Station 30 minutes later at a constant speed of 50 kilometres per hour.

At what time will the faster of the two trains be 40 kilometres ahead of the slower train?

- A 5:30 PM
- B 6:30 PM
- C 7:30 PM
- D 8:30 PM
- E 9:30 PM



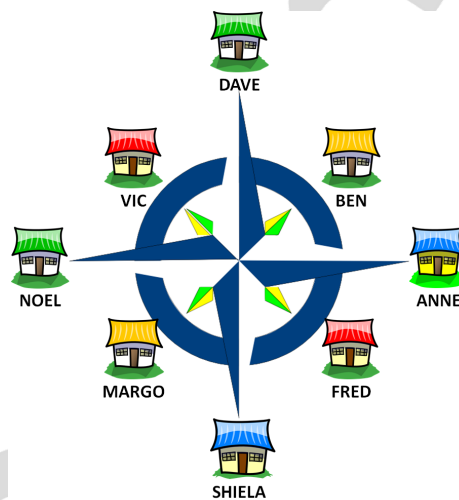
- 35** If Ruby walks at a constant speed of 10 kilometres per hour, she will reach the park at 5:30 PM.

If she walks at a constant speed of 15 kilometres per hour, she will reach the park at 3:30 PM.

What time will Ruby reach the park if she walks at a constant speed of 12 kilometres per hour?

- A 1:30 PM
- B 2:20 PM
- C 3:40 PM
- D 4:30 PM
- E 5:10 PM

- 36** The figure below shows the locations of the houses of eight friends.

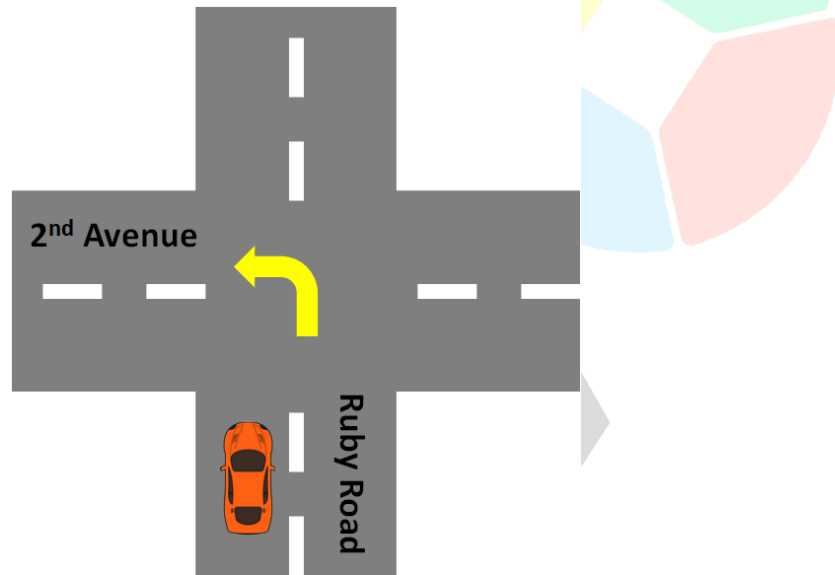


Noel's house is located in the southeast direction.

Whose house is located in the west direction?

- A Vic
- B Margo
- C Noel
- D Ben
- E Anne

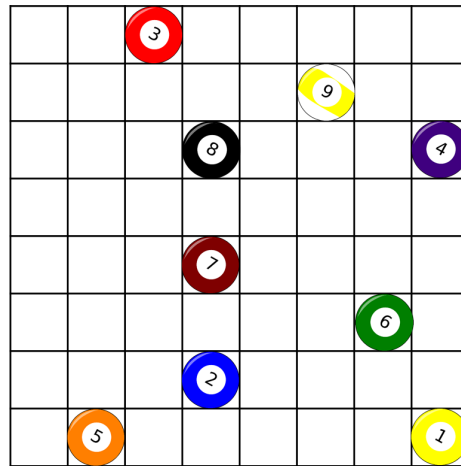
- 37 A car is travelling along Ruby Road when it took a turn towards 2nd Avenue, as shown in the picture.



If the car was heading in the southeast direction after it made the turn, in which direction was the car travelling before it made the turn?

- A Southwest
- B West
- C South
- D Southeast
- E East

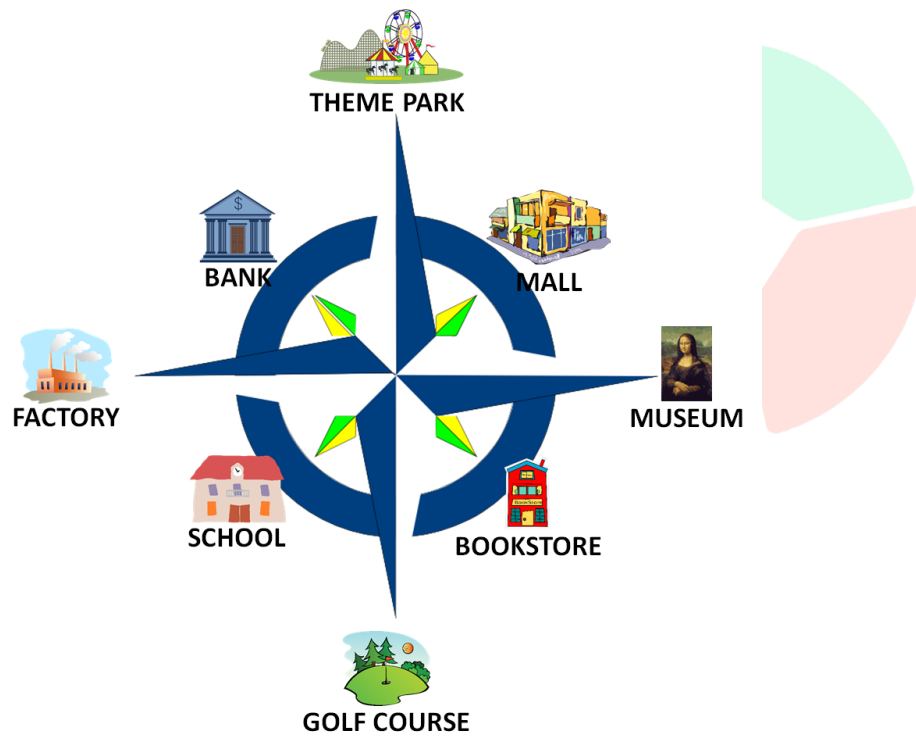
38 The figure below shows the locations of the nine billiards balls on the table.



If the number **2** ball is located northeast of the number **4** ball, the number **8** ball is located in what direction of the number **6** ball?

- A Southwest
- B West
- C South
- D Southeast
- E East

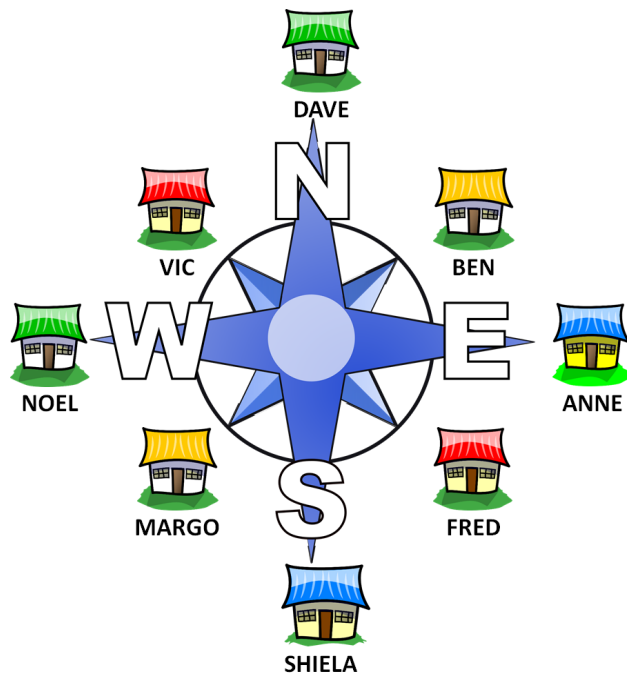
39 The figure below shows some of the locations in the town of Autumnville.



If the museum is located in the southwest direction, what is located in the northeast direction?

- A Bookstore
- B Bank
- C Factory
- D Museum
- E School

40 The figure below shows some of the locations of the houses of eight friends.



Emma made one quarter turn clockwise, then made one half turn anti-clockwise, and then made three quarter turns clockwise.

If she ended up facing Vic's house, which house was she facing before she made the series of turns?

- A Anne
- B Ben
- C Fred
- D Dave
- E Noel