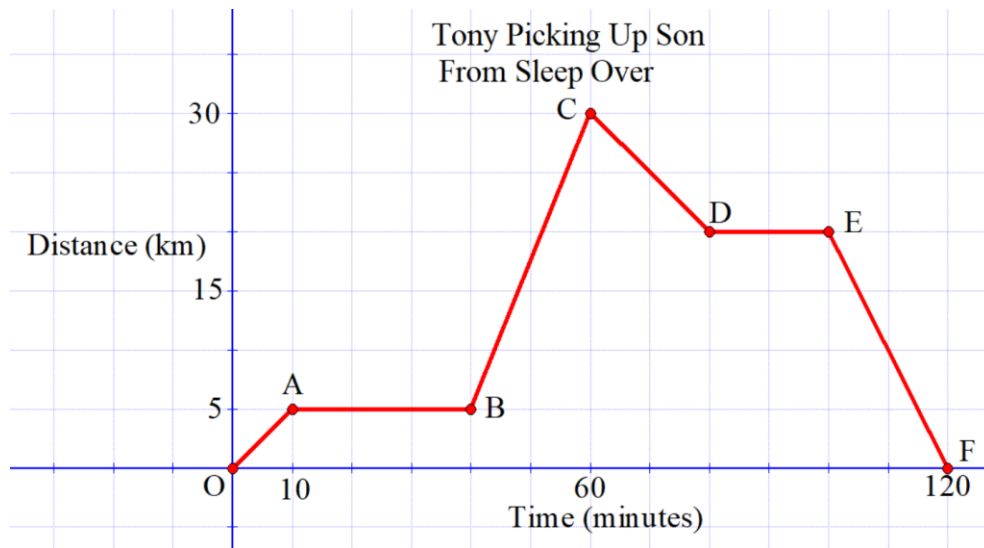


Interpreting Graphs

Use the graph below to answer the first **two** questions.

Shortly after leaving his house to pick up his son, Andrew, from a sleep over, Tony got a flat tire. He then drove straight to pick up Andrew and immediately started for home. Part way home, they stopped for some food.



Statement 1	Segment BC represents the fastest speed he was travelling.
Statement 2	The distance to the sleep over was 120 km.
Statement 3	The total time to pick up Andrew and arrive home again was 2 hrs.
Statement 4	The time spent picking up food was 30 min.

1. The two correct statements are

A) 1 and 2

B) 3 and 4

C) 1 and 3

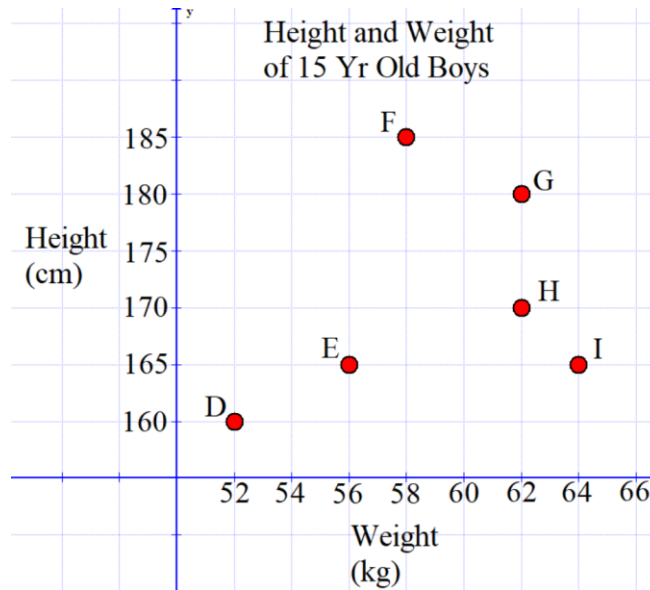
D) 2 and 4

2. The time it took to fix the flat tire was _____ min.

Use the following information to answer the next **two** questions.

The graph below shows the heights and weights of six 15 year old boys.

D = Daryl	F = Frank	H = Harvey
E = Eddie	G = Gord	I = Ivan



Consider the following statements.

Statement 1	Of the boys who are the same height, the heaviest one is Eddie.
Statement 2	The tallest boy greater than 60 kg is Gord.
Statement 3	The lightest boy greater than 170 cm is Frank.
Statement 4	The two boys that are the same weight are Eddie and Ivan.

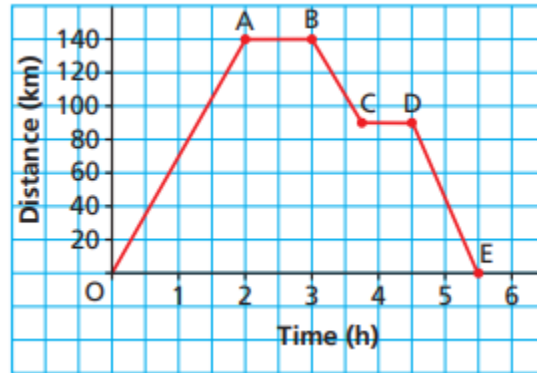
3. The two true statements are

- A) 1 and 4 B) 2 and 3 C) 1 and 2 D) 3 and 4

4. The **second** tallest boy is _____ and he has a height of _____ cm and a weight of _____ kg.

Use the following information to answer the next question.

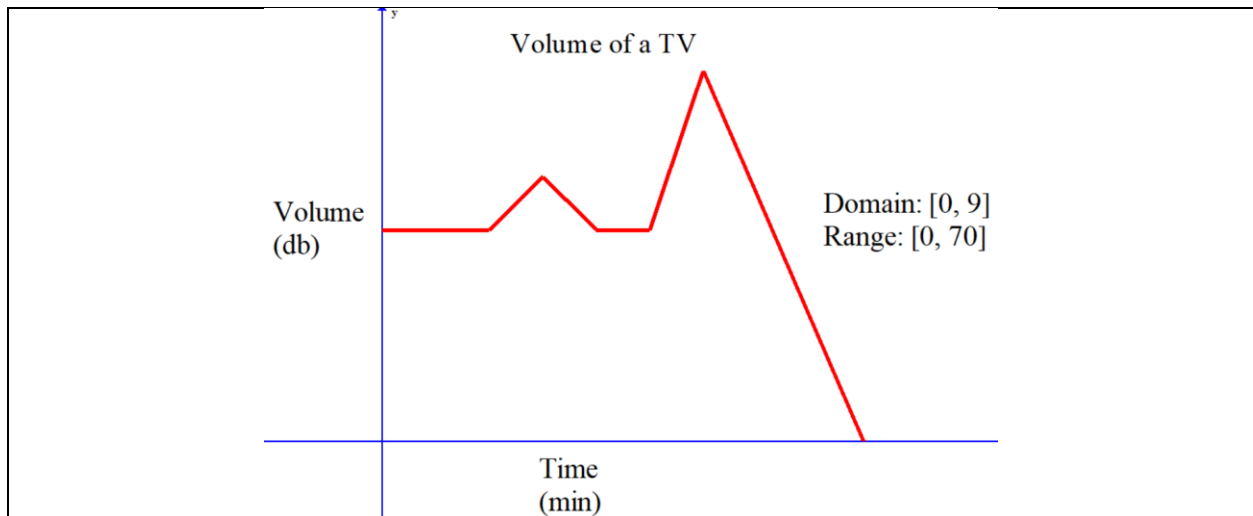
A retired couple embarked on a day trip. Their journey is represented by the graph below.



5. The domain and range of this graph are

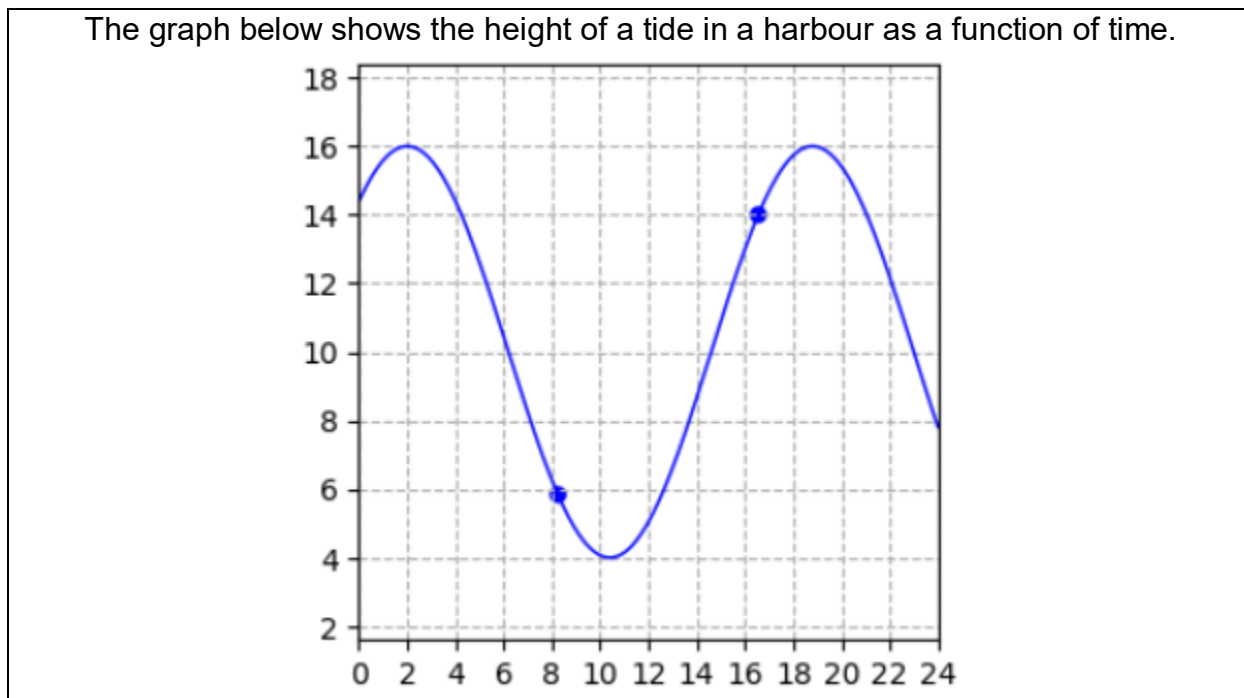
- A) Domain: $[0,6]$, Range: $[0, 280]$
- B) Domain: $[0,5.5]$, Range: $[0, 280]$
- C) Domain: $[0,5.5]$, Range: $[0, 140]$
- D) Domain: $[0,6]$, Range: $[0, 140]$

Use the following information to answer the next question.



6. The loudest volume on the TV is _____ db.

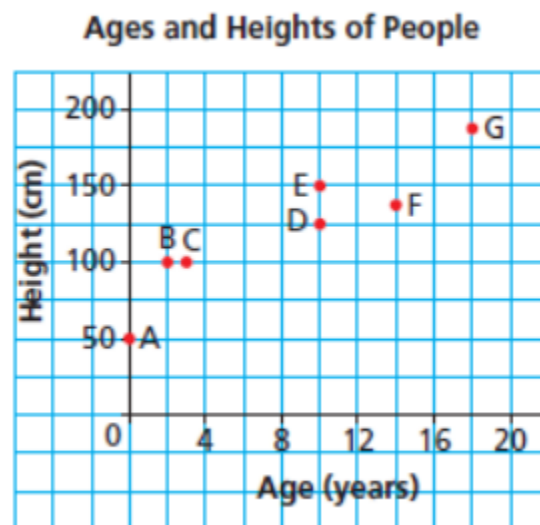
Use the following graph to answer the next question.



7. The maximum height, in metres, of the tide before 12:00 noon is ____ and this occurs at a time of ____.

Use the following information to answer the next question.

Each point of the graph represents a person.

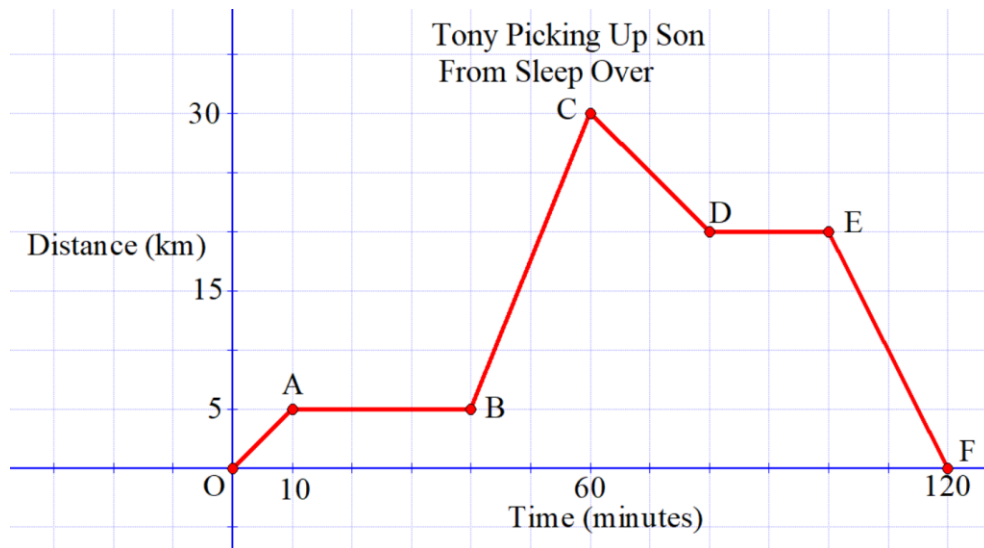


8. You and a friend are analysing the data from this graph. Your friend says that Person D is taller than most people shown on the graph. Do you agree? Explain.

Interpreting Graphs Solutions

Use the graph below to answer the first **two** questions.

Shortly after leaving his house to pick up his son, Andrew, from a sleep over, Tony got a flat tire. He then drove straight to pick up Andrew and immediately started for home. Part way home, they stopped for some food.



Statement 1	Segment BC represents the fastest speed he was travelling.
Statement 2	The distance to the sleep over was 120 km.
Statement 3	The total time to pick up Andrew and arrive home again was 2 hrs.
Statement 4	The time spent picking up food was 30 min.

1. The two correct statements are

A) 1 and 2

B) 3 and 4

C) 1 and 3

D) 2 and 4

Solution

Statement 1

Four of the segments represent travelling time. These are OA, BC, CD, and EF.

The steepness of a line, or slope, is used to determine the fastest speed because the steeper the line (greater slope), the greater the speed.

Segment OA shows 5 km in 10 min. Using a proportion, $\frac{5 \text{ km}}{10 \text{ min}} = \frac{30 \text{ km}}{60 \text{ min}}$ or $30 \frac{\text{km}}{\text{hr}}$.

Segment BC shows 25 km in 20 min. Using a proportion, $\frac{25 \text{ km}}{20 \text{ min}} = \frac{75 \text{ km}}{60 \text{ min}}$ or $75 \frac{\text{km}}{\text{hr}}$.

Segment CD shows 10 km in 20 min. Using a proportion, $\frac{10 \text{ km}}{20 \text{ min}} = \frac{30 \text{ km}}{60 \text{ min}}$ or $30 \frac{\text{km}}{\text{hr}}$.

Segment EF shows 20 km in 20 min. Using a proportion, $\frac{20 \text{ km}}{20 \text{ min}} = \frac{60 \text{ km}}{60 \text{ min}}$ or $60 \frac{\text{km}}{\text{hr}}$.

Segment BC represents the fastest speed and thus **statement 1 is true**.

Statement 2

The distance to the sleepover is the difference between the lowest distance and the largest distance. The lowest distance is 0 and the largest distance is 30. The distance to the sleepover is 30 km. **Statement 2 is false**.

Statement 3

The journey began at 0 time and ended at 120 min (or 2 hours). This information is read off of the x-axis. The difference between these two values is the total time. **Statement 3 is true**.

Statement 4

The time picking up food is shown by segment DE. They stopped to pick up the food 80 minutes into the journey and continued driving 100 minutes into the journey. The difference between these two numbers, read off of the x-axis, is 20 min. **Statement 4 is false**.

The two true statements are 1 and 3.

The correct answer is C.

2. The time it took to fix the flat tire was 30 min.

Solution

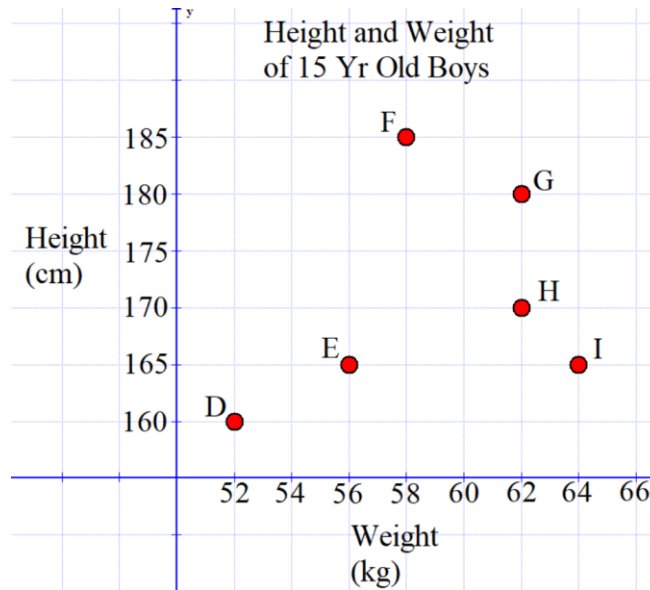
The flat tire is represented by segment AB. Reading off of the x-axis, the changing of the tire began at the 10 minute mark, and ended at the 40 minute mark. The difference between these two numbers is the time taken to fix the tire.

The time it took to fix the flat tire was 30 min.

Use the following information to answer the next **two** questions.

The graph below shows the heights and weights of six 15 year old boys.

D = Daryl	F = Frank	H = Harvey
E = Eddie	G = Gord	I = Ivan



Consider the following statements.

Statement 1	Of the boys who are the same height, the heaviest one is Eddie.
Statement 2	The tallest boy greater than 60 kg is Gord.
Statement 3	The lightest boy greater than 170 cm is Frank.
Statement 4	The two boys that are the same weight are Eddie and Ivan.

3. The two true statements are

A) 1 and 4

B) 2 and 3

C) 1 and 2

D) 3 and 4

Solution

Statement 1

Eddie and Ivan are the two boys who are the same height of 165 cm. If we connected these points on a graph, a horizontal line would be formed. This indicates values that are the same when read off of the y-axis. Ivan is the furthest to the right and he has a weight of 64 kg. Eddie weighs in at 56 kg. Ivan is the heavier boy. Statement 1 is **false**.

Statement 2

There are 3 boys greater than 60 kg, Gord, Harvey and Ivan. The tallest of these three would be the boy shown at the top of the graph. Gord's height is 180 cm, which is greater than both Harvey and Ivan. Statement 2 is **true**.

Statement 3

There are two boys greater than 170 cm, Frank and Gord. The lightest of these two is Frank at 58 kg. Statement 3 is **true**.

Statement 4

Since weight is on the x-axis, any two points that form a vertical line if connected, would show equal weights. Gord and Harvey would form such a line at 62 kg. The boys that are the same weight are Gord and Harvey, not Eddie and Ivan. Statement 4 is **false**.

The two true statements are 2 and 3.

The correct answer is B.

4. The **second** tallest boy is Gord and he has a height of 180 cm and a weight of 62 kg.

Solution

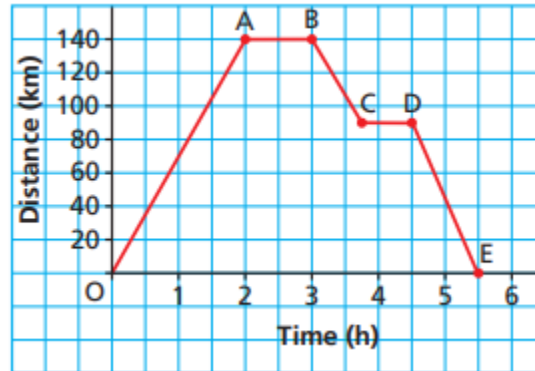
Since height is on the vertical, or y-axis, the highest point on the graph indicates the tallest boy. Frank is the tallest. His height is 185 cm.

The second tallest boy is Gord. His height is read off of the y-axis by moving horizontally to the left. His height is 180 cm. His weight is read off of the x-axis by moving directly down. His weight is 62 kg.

The second tallest boy is Gord and he has a height of 180 cm and a weight of 62 kg.

Use the following information to answer the next question.

A retired couple embarked on a day trip. Their journey is represented by the graph below.



5. The domain and range of this graph are

- A) Domain: $[0,6]$, Range: $[0, 280]$
- B) Domain: $[0,5.5]$, Range: $[0, 280]$
- C) Domain: $[0,5.5]$, Range: $[0, 140]$
- D) Domain: $[0,6]$, Range: $[0, 140]$

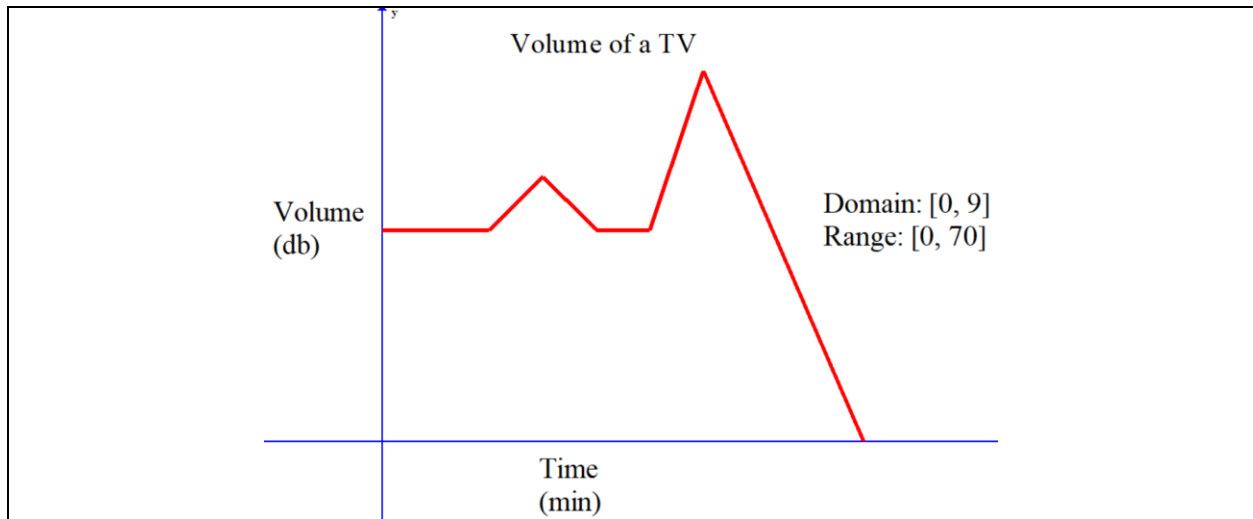
Solution

The domain is read off of the x-axis. The graph starts at the point $(0,0)$ which means that at 0 time, the distance is also 0. The graph rises, levels off, drops, levels off again, and then drops one more time. The graph stops when the line touches the x-axis at 5.5. Since x can be any value between 0 and 5.5, the **domain is written as $[0,5.5]$** .

The lowest point of the graph is on the x-axis, which indicates $y = 0$. The highest point of the graph is 140. Since y can be any value between 0 and 140, the **range is written as $[0,140]$** .

The correct answer is C.

Use the following information to answer the next question.



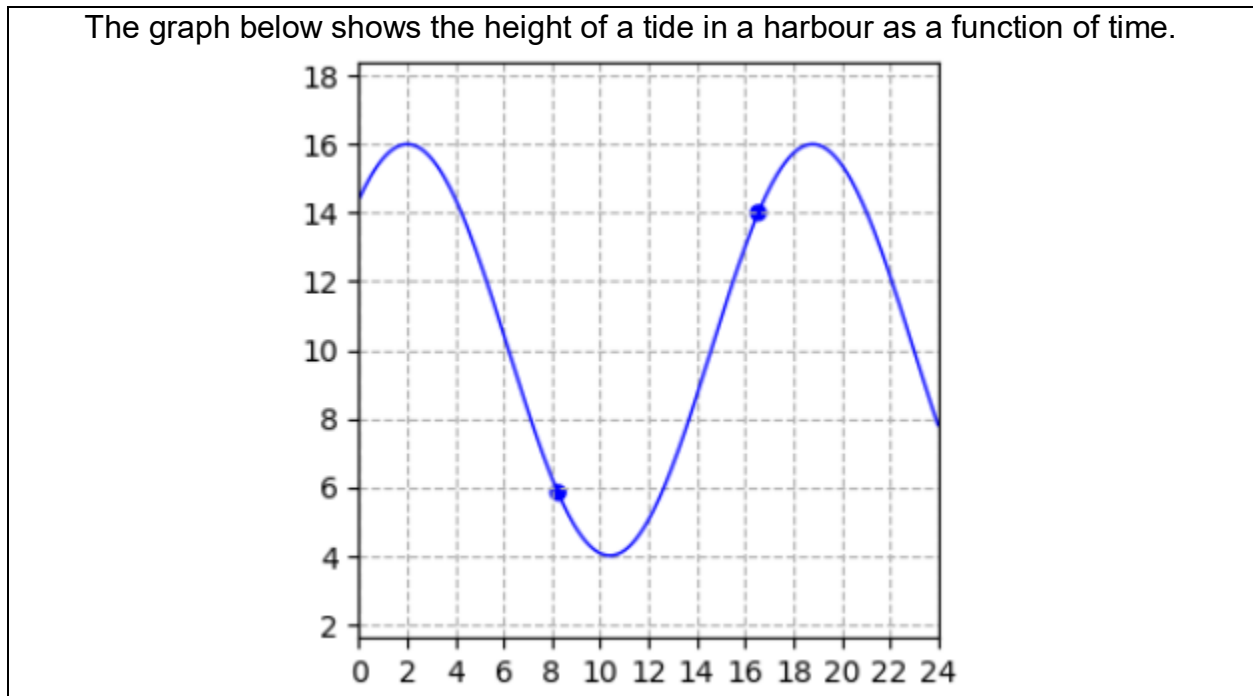
6. The loudest volume on the TV is 70 db.

Solution

Given a range of [0,70], we know that the lowest point is 0 and the highest point is 70. The highest point of 70 represents the loudest volume on the TV.

The loudest volume on the TV is 70 db.

Use the following graph to answer the next question.



7. The maximum height, in metres, of the tide before 12:00 noon is 16 and this occurs at a time of 2:00 am.

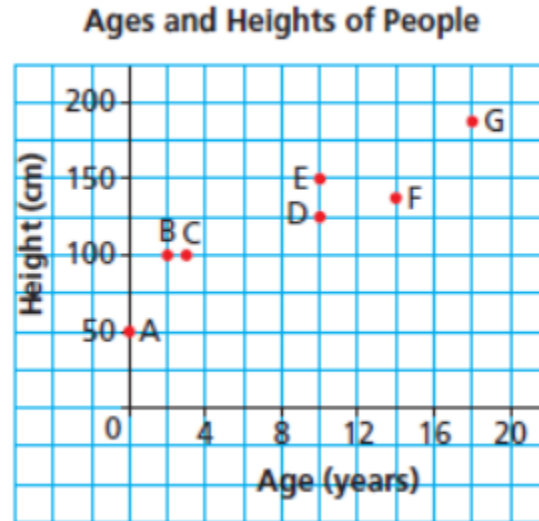
Solution

At 12:00 noon, the height of the tide is about 5 m. Moving to the left of that point (in other words, before 12:00 noon), the graph dips slightly, and then rises to a maximum of 16 m. Moving directly down to the x-axis from that maximum height, we can read off the x-axis that at 2:00 am, a maximum height of 16 m is reached.

The maximum height, in metres, of the tide before 12:00 noon is 16 and this occurs at a time of 2:00 am.

Use the following information to answer the next question.

Each point of the graph represents a person.



8. You and a friend are analysing the data from this graph. Your friend says that Person D is taller than most people shown on the graph. Do you agree? Explain.

Solution

Person D is 10 years old (same age as E). We read this number by moving directly down to the x-axis, that represents age. Person D has a height of 125 cm. We read this number by moving directly to the left to the y-axis, that represents height.

In terms of height, there are three people taller than D. They are E, F, and G. These 3 people are taller because they are closer to the top of the graph. There are also 3 people shorter than D. They are A, B, and C. These people are shorter because they are closer to the x-axis, when compared to D.

Person D is not taller than most people because there are the same number greater in height as compared to the number of people who are shorter than D.