**Which staircase is steeper?**

Below are pictures and descriptions of two staircases. Your task is to determine which staircase is steeper. Prepare a mathematical argument to defend your choice. Be prepared to share your work including an explanation of what “steeper” means.

 A section of the Staircase to Heaven has the following profile details:

2.5 feet

1.75 feet

Haiku Stairs (Stairway to Heaven) in Honolulu



A section of the Crooked Street stairs has the following profile details:

0.25 feet

1.5 feet



**Who is traveling faster?**

Consider the two situations and determine who is traveling faster. Prepare a mathematical argument to defend your choice. Be prepared to share your work including an explanation of what “faster” means.

Situation 1: During migration, ducks and geese can travel 25 miles in one-half hour.



Situation 2: During migration, humpback whales can travel 0.75 miles in one-quarter hour.

Celsius/Fahrenheit Conversion

|  |  |
| --- | --- |
| ***Celsius Temp.*** | ***Fahrenheit Temp.*** |
| 0 | 32 |
| 5 | 41 |
| 10 | 50 |
| 15 | 59 |
| 20 | 68 |
| 25 | 77 |

a. Show that these data can be modeled using a linear function.

b. Write an equation that models these data.

c. Express the equation in b. in function notation by using *F*(*C*).

d. Find the value of *F*(35) and explain what it would mean.

e. Solve 98.6 = *F*(*C*) and explain what it means.

f. What is your slope and what does it mean?

Visitors to the Grand Canyon

|  |  |
| --- | --- |
| ***Number of Years Since 1960*** | ***Number of Visitors (millions)*** |
| 0 | 1.2 |
| 10 | 2.3 |
| 20 | 2.6 |
| 30 | 3.8 |
| 40 | 4.8 |

a. Show that these data can be modeled using a linear function.

b. Write an equation that models these data.

c. Express the equation in b. in function notation by using *V*(*t*).

d. Find the value of *V*(45) and explain what it would mean.

e. Solve 6.0 = *V*(*t*) and explain what it means.

f. What is your slope and what does it mean?

Target Pulse Rate for Exercising

|  |  |
| --- | --- |
| ***Age*** | ***Target Pulse Rate (beats per minute)*** |
| 20 | 150 |
| 30 | 142 |
| 40 | 135 |
| 50 | 127 |
| 60 | 120 |
| 70 | 113 |

a. Show that these data can be modeled using a linear function.

b. Write an equation that models these data.

c. Express the equation in b. in function notation by using *P*(*A*).

d. Find the value of *P*(18) and explain what it would mean.

e. Solve 120 = *P*(*A*) and explain what it means.

f. What is your slope and what does it mean?