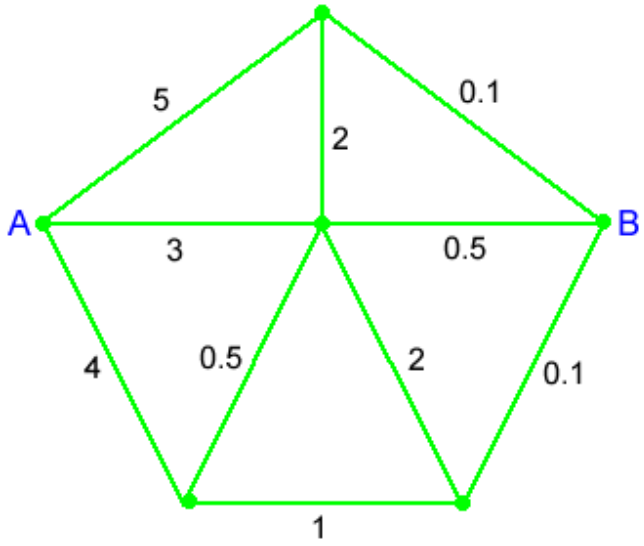
LO: To multiply decimals by an integer.

Route Product Investigation

Look at this diagram. There are lots of different routes to get from A to B. When you travel down a route, you multiply the numbers together to find the product. The only rule is that you are not allowed to travel through the same point more than once between A and B.

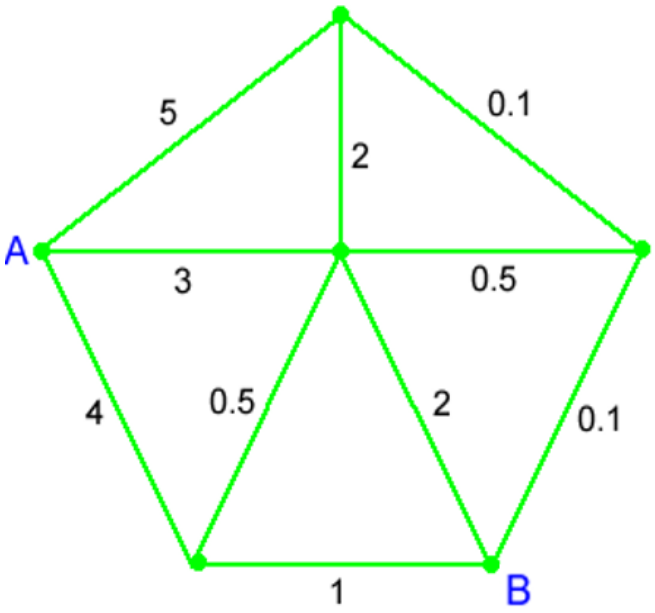


Find all the possible products to enable you to answer these two questions:
Which route or routes gives the largest product?
Which route or routes gives the smallest product?

5 x 0.1 = 0.5
5 x 2 x 0.5 = 5 This is the largest product.
5 x 2 x 2 x 0.1 = 2
5 x 2 x 0.5 x 1 x 0.1 = 0.5
3 x 2 x 0.1 = 0.6
3 x 0.5 = 1.5
3 x 2 x 0.1 = 0.6
3 x 0.5 x 1 x 0.1 = 0.15 This is the smallest product.
4 x 1 x 0.1 = 0.4
4 x 1 x 2 x 0.5 = 4
4 x 1 x 2 x 2 x 0.1 = 1.6
4 x 0.5 x 2 x 0.1 = 0.4
4 x 0.5 x 0.5 = 1
4 x 0.5 x 2 x 0.1 = 0.4

There are 14 routes.

Extension Task



If B is moved to a new location, does that change the number of possible routes and the largest and smallest products?

5 x 0.1 x 0.1 = 0.05
5 x 0.1 x 0.5 x 2 = 0.5
5 x 0.1 x 0.5 x 0.5 x 1 = 0.125
5 x 2 x 0.5 x 0.1 = 0.5
5 x 2 x 2 = 20 This is the largest product this time.
5 x 2 x 0.5 x 1 = 5
3 x 2 x 0.1 x 0.1 = 0.06
3 x 0.5 x 0.1 = 0.15
3 x 2 = 6
3 x 0.5 x 1 = 1.5
4 x 1 = 4
4 x 0.5 x 2 = 4
4 x 0.5 x 0.5 x 0.1 = 0.1
4 x 0.5 x 2 x 0.1 x 0.1 = 0.04 This is the smallest product this time.

There are still 14 routes.