



The Five Yachts Race Linear Functions Activity



The movement of five yachts is described below by their equations, where d denotes the distance from the starting line, in metres, at time t in seconds.

Assume that the yachts **Acadia**, **Belicoso**, **Camelot**, **Dynamo** and **Endevour** maintained constant speeds throughout the race and travelled in straight lines.

The starter gun went off at time $t = 0$ seconds.

The following equations describe the motion of each yacht:

Yacht name	Equation
Acadia (A)	$d = 3t + 3$
Belicoso (B)	$d = 2t$
Camelot (C)	$d = 2t - 4$
Dynamo (D)	$d = 2.5t - 8$
Endevour (E)	$d = t - 2$

Task One: On the set of axes below, draw a line for each yacht. Clearly label each line.

Task Two: Answer the following questions:

1. Which yacht was disqualified?
2. Which yacht was right on the line when the starter's gun went off?
3. Which yacht was furthest behind the line when the gun went off?
4. Which yacht was travelling at the greatest speed?
5. What was the speed of **Acadia**?
6. What was the speed of **Dynamo**?
7. Identify two yachts travelling at the same speed.
8. When and where did **Dynamo** overtake **Endevour**?
9. Find where and when **Dynamo** would overtake **Belicoso**, if they maintained their speeds.

Task Three: Two seconds before the start, a rescue boat was 7 metres in front of the starting line and travelling towards the line at 4 metres per second.

10. Draw a graph and find a rule for the rescue boat.
11. How many yachts will the rescue boat overtake on its route during the first 4 minutes of the race?