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Surface Area of a Boat

It is important to know how much surface area is available on a boat or ship so that we know how many passengers or how much cargo it can hold.

We can simplify the shape of a boat to make finding the surface area easier.

Remember!

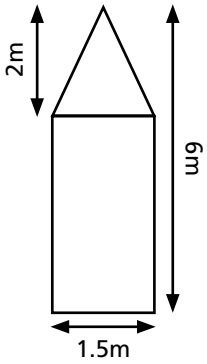
Area of rectangle = length x width

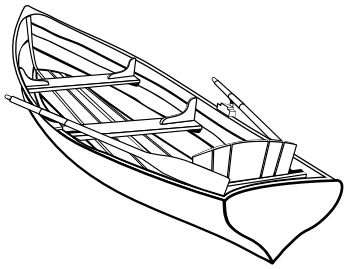
Area of triangle = half x base x height

Surface Area Question 1:

This rowing boat has a **width of 1.5m** and an **overall length of 6m**. The bow section is 2m long.

Calculate the surface area of this boat.

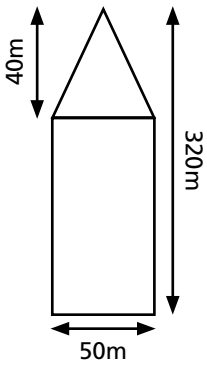


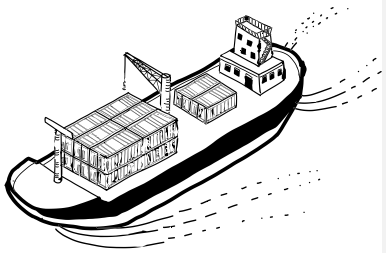


Surface Area Question 2:

This cargo boat has a **width of 50m** and an **overall length of 320m**. The bow section is 40m long.

Calculate the surface area of this boat.





To find the surface area of the boat, you will first need to find the area of the rectangular part, then the area of the triangular part, and finally add the two together. Remember, as you are calculating the area, your units will be m^2.

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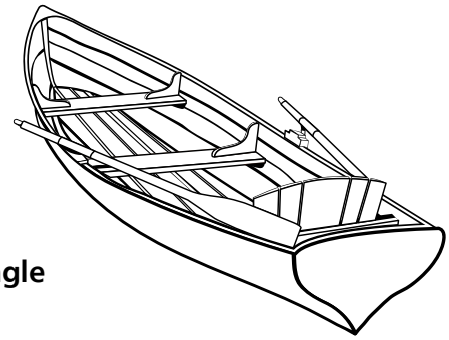
Surface Area Solutions

Surface Area Question 1: Rowing Boat

Area of rectangle = length x width
Area of rectangle = (6m-2m)x 1.5m
Area of rectangle = 4m x 1.5m
Area of rectangle = $6m^2$

Area of triangle = 1/2 x length x width
Area of triangle = 1/2 x 2m x 1.5m
Area of triangle = $1.5m^2$

Total surface area = area of rectangle+area of triangle
Total surface area of rowing boat = $6m^2+1.5m^2$
Total surface area of rowing boat = $7.5m^2$

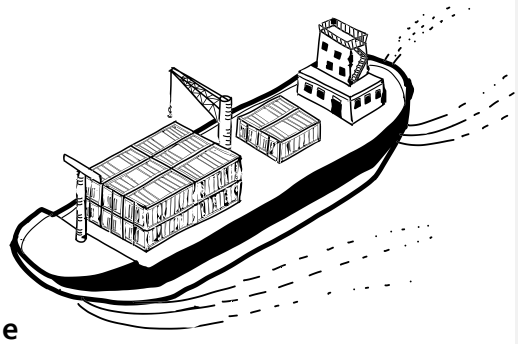


Surface Area Question 2: Cargo Boat

Area of rectangle = length x width
Area of rectangle = (320m-40m) x 50m
Area of rectangle = 280m x 50m
Area of rectangle = $14,000m^2$

Area of triangle = 1/2 x length x width
Area of triangle = 1/2 x 40m x 50m
Area of triangle = $1,000m^2$

Total surface area = area of rectangle+area of triangle
Total surface area of cargo boat = $14,000m^2+1,000m^2$
Total surface area of cargo boat = $15,000m^2$



Surface Area Conclusions

Surface area can be approximated by simplifying the complex shape into simple shapes, such as rectangles and triangles. This is how you can break down complicated problems into simple steps.

Engineers need to calculate how much surface area is available on boats so that they know how much space there is for passengers and cargo.

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