### 17th March

#### A sequence of numbers is formed by the iterative process

\[ a_{n+1} = (a_n)^2 - 5 \]

\[ a_1 = 3 \]

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#### A sculptor wants to transport a piece of rock. It is a sphere with radius 0.4m to the nearest centimetre. The density of the rock is 3.4g/cm³. The truck can carry up to 1000kg to one significant figure.

Can the sculptor safely transport the rock?

#### A remote control car drives in a straight line.

It starts from rest and travels with constant acceleration for 15 seconds reaching a velocity of 10m/s. It then travels at a constant speed for 5 seconds. It then slows down with constant deceleration of 0.5m/s².

Draw a velocity-time graph and work out the total distance travelled.

#### Find the exact length of the side labelled \(w\).

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