



(2)

(3)

1. Calculate

(a)
$$\int (x^6 + x^3 - 2x + 1) dx$$
 (b) $\int 5 \sqrt{x} dx$ (4)

2. Evaluate

(a)
$$\int_{9}^{25} \frac{1}{\sqrt{x}} dx$$
 (b) $\int_{1}^{4} \frac{4}{x^{3}} + \frac{1}{2\sqrt{x}} dx$ (4)

3. Find f(x) given that $f'(x) = 4x^3 - 2x + 1$.

On the diagram each unit² represents 3m²

- 4. $f'(x) = x^2 4x + 6$ and f(3) = 4. Find a formula for f(x).
- 5. Calculate the area enclosed by $y = (x 2)^2$ and y = -2x + 4 (4)
- 6. The diagram opposite shows the design for the blades of a windmill. All 4 blades are equal in size and are made from aluminium. A single blade can be described as the area between the line y = 6x and the parabola y = 2x².

Calculate the total area of aluminium needed to make the 4 blades.



(5)