Name: _____

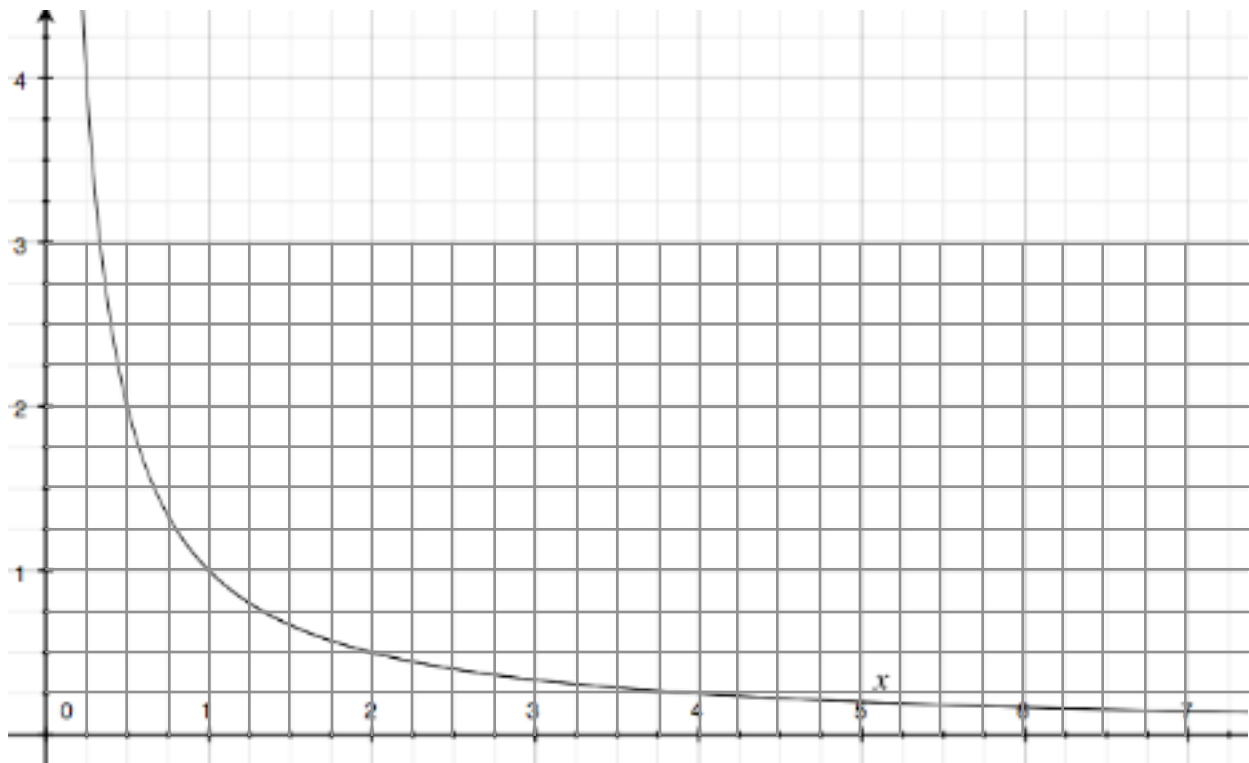Find the antiderivative of each function.

1. $y = \dfrac{8}{x^4}$
2. $y = \sin^3 x \cos x$
3. $y = \dfrac{\ln x}{x}$

4. a) Use calculus to find the area under the curve $y = 1/x$ from 2 to 7.

b) Use calculus to find the area under the curve $y = 1/x$ from 0 to 2. Explain.

5.   a) Find the area under the curve $y = 2x - 4$ from 0 to 4 using calculus.

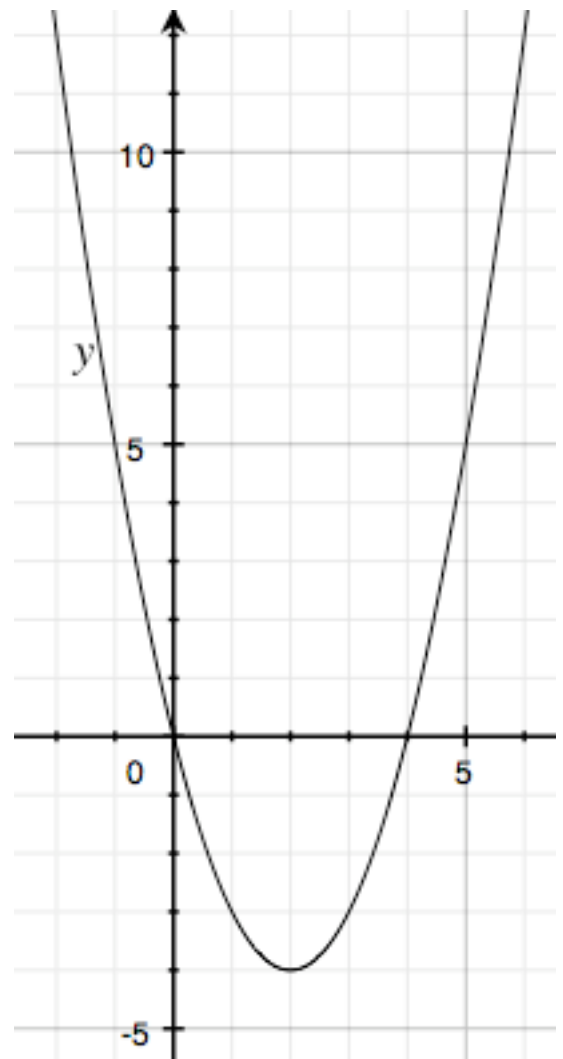b) Explain why that answer makes sense (draw a picture).

6.   a) Find the area under the curve $y = x^2 - 4x$ from 0 to 4.

b) When does this area switch from negative to positive?

c) Relate this answer to your answer in #5.

d) Where is the **minimum** of the curve $y = x^2 - 4x$?

e) Relate this answer to your answers in #5.

7. a) Find the area under the curve $y = x^3$ from 0 to 1.

b) Find the area under the curve $y = 2x^3$ from 0 to 1.

c) Find the area under the curve $y = 1/2x^3$ from 0 to 1.

d) What does a coefficient do to the area under a given curve? Explain why this makes sense geometrically.