

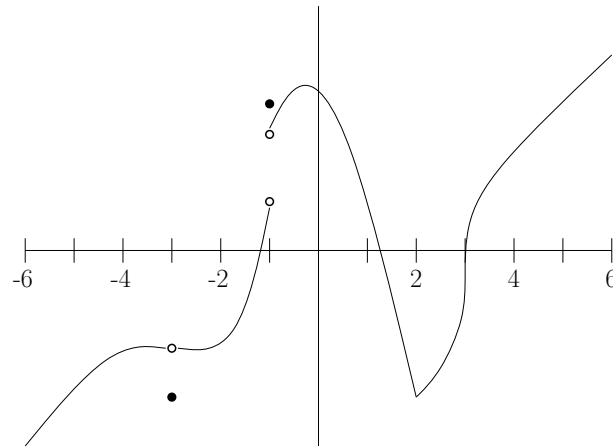
4. If $y = \frac{12x^2}{7+\ln(x)}$ find y' .

5. Differentiate $f(x) = 5 \cos^7(4x + \csc x)$.

6. Find $\frac{d}{dx}(\sin(x) - 8)^3(\cos(x) + 6)^5$.

7. Find the tangent line to the hyperbola $x^2 + 2xy - y^2 + x = 2$ at $(1, 2)$.

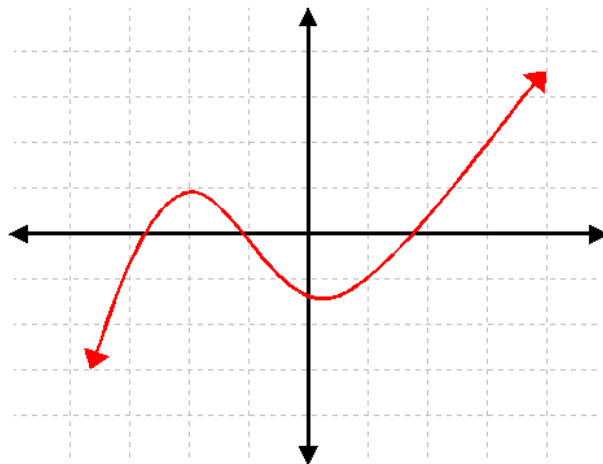
8. The graph of f is given below.



(a) Find all points where f is not continuous.

(b) Find all points where f is not differentiable.

9. The graph of g is given below. Sketch the graph of g' .



10. At noon, two airplanes leave an airport. The first travels North at 200 mph, while the other plane travels East at 300 mph. How fast is the distance between them increasing 3 hours later?