Lab exercises for second derivatives and concavity

For each of the following functions, determine

(a) Where the function is concave up

(b) Where the function is concave down

(c) All the inflection points.

1. $f(x) = (x-3)^2 - 4$

2. $f(t) = (t-3)(t-1)(t+4)$

3. $g(x) = x^3 e^{-x}$

4. $h(x) = (x^2 - 9)^3$

5. $h(x) = \frac{x^2-4}{x^2-9}$

6. $h(x) = \tan(x)^2$

7. $h(x) = \ln x$

8. $h(x) = \tan(x)$

9. $h(x) = (\ln x)^2$