

Homework Section 4.3 - Due 29th March

**You may draw your sketches in pencil. Draft your work if necessary.
Read the questions carefully.**

Asymptotes must be included in your graphs.

1. #8 on page 174. Give a general equation that describes *all* the asymptotes.
2. #20 on page 174. Give a general equation that describes *all* the asymptotes.
3. Without graphing, determine the period and the horizontal shift of the following functions compared to $y = \tan(x)$:
 - (a) $y = \tan\left(\frac{x}{3}\right)$
 - (b) $y = \tan(x - 2)$
 - (c) $y = \tan(2 - x)$ (Hint: odd function)
 - (d) $y = \tan\left(x + \frac{\pi}{2}\right)$
 - (e) $y = \tan\left(\frac{5}{2}x + 10\right)$
 - (f) $y = \tan\left(\frac{1}{4}(x - 3)\right)$
- *4. Explain the transformations of the graph $y = \alpha \sin(\beta x + \gamma) + \delta$ where $\alpha, \beta, \gamma, \delta$ are all *positive* constants.
5. Explain the transformations of the graph $y = \alpha \cos(\beta x + \gamma) + \delta$ where $\alpha, \beta, \gamma, \delta$ are all *negative* constants.
- *6. Graph the function $y = \tan(x) \cos^2(x) + \tan^3(x) \cos^2(x)$.
(Hint: Use identities to simplify)

*Optional questions