GRAPHS – WORKSHEET #2

COURSE/LEVEL

NSW Secondary High School Year 12 HSC Mathematics Extension 2.

TOPIC

Graphs: Sketching functions by multiplication and division of ordinates.
(Syllabus Refs: 1.4, 1.5)

- graph a function $y = c\,f(x)$ by initially graphing $y = f(x)$,
- graph a function $y = f(x)\,.\,g(x)$ by initially graphing $y = f(x)$ and $y = g(x)$.
- graph $y = 1/f(x)$ by initially graphing $y = f(x)$
- graph $y = f(x)/g(x)$ by initially graphing $y = f(x)$

1. $y = xe^{-x}$
2. $y = x^2e^{-x}$
3. $y = x\sin x$
4. $y = x\cos x$
5. $y = e^x \sin x$
6. $y = e^{-x}\sin x$
7. $y = x\ln x$
8. $y = x^2 \ln x$
9. $y = \dfrac{\ln x}{x}$
10. $y = \dfrac{x}{\ln x}$
11. $y = \dfrac{e^x}{x}$
12. $y = \dfrac{e^x}{x^2}$
13. $y = \dfrac{x}{\sin x}$
14. $y = \dfrac{x}{1+\sin x}$
15. $y = \dfrac{\cos x}{x}$
16. $y = \dfrac{x}{\tan x}$
17. $y = \dfrac{|x|}{x}$
18. $y = \dfrac{|x|}{x^2}$
19. $y = \dfrac{e^x - e^{-x}}{e^x + e^{-x}}$
20. $y = x\sin^{-1} x$