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 $y = f(x) \cdot g(x)$ 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 $y = f(x)$

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1. $y = xe^{-x}$

2. $y = x^2 e^{-x}$

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. $y = x \sin^{-1} x$