

GRAPHS – WORKSHEET #3

COURSE/LEVEL

NSW Secondary High School Year 12 HSC Mathematics Extension 2.

TOPIC

Graphs: Drawing graphs of the form $y = [f(x)]^n$. (Syllabus Ref: 1.6)

Drawing graphs of the form $y = \sqrt{f(x)}$. (Syllabus Ref: 1.7)

- graph a function $y = [f(x)]^n$ by initially graphing $y = f(x)$,
- graph a function $y = \sqrt{f(x)}$ by initially graphing $y = f(x)$.

1. $y = x, y = x^2, y = x^3, y = x^4$ ($0 \leq x \leq 1$)
2. $y = -x, y = x^2, y = -x^3, y = x^4$ ($0 \leq x \leq 1$)
3. $y = x^2 - 1, y = (x^2 - 1)^2$
4. $y = x^2 - 1, y = (x^2 - 1)^3$
5. $y = x(x^2 - 4), y = x^2(x^2 - 4)^2$
6. $y = x(x^2 - 4), y = x^3(x^2 - 4)^3$
7. $y = -2\sin x, y = 4\sin^2 x$
8. $y = -\sin x, y = -\sin^3 x$
9. $y = \ln x, y = (\ln x)^2$
10. $y = \ln x, y = (\ln x)^3$
11. $y = |x - 2| + 1, y = (x - 2)^2 + 2|x - 2| + 1$
12. $y = |x - 1| + |x + 1|, y = (|x - 1| + |x + 1|)^2$
13. $y = 1 - x^2, y = \sqrt{1 - x^2}$
14. $y = x^2 - 1, y = \sqrt{x^2 - 1}$
15. $y = x(x^2 - 1), y = \sqrt{x(x^2 - 1)}$
16. $y = x^2(x^2 - 1), y = \sqrt{x^2(x^2 - 1)}$
17. $y = (x - 2)(x + 1)^2, y^2 = (x - 2)(x + 1)^2$
18. $y = (x - 2)(x + 1)^3, y^2 = (x - 2)(x + 1)^3$
19. $y = \sin x, y^2 = \sin x$
20. $y = 4\cos x, y^2 = 4\cos x$
21. $y = \frac{x}{(x-1)(x+2)}, y = \sqrt{\frac{x}{(x-1)(x+2)}}$
22. $y = \frac{x(x-1)}{x+2}, y = \sqrt{\frac{x(x-1)}{x+2}}$