GRAPHS – WORKSHEET #1

COURSE/LEVEL

NSW Secondary High School Year 12 HSC Mathematics Extension 2.

TOPIC

Graphs: Drawing graphs by addition and subtraction of ordinates. (Syllabus Ref: 1.2)
Drawing graphs by reflecting functions in coordinate axes. (Syllabus Ref: 1.3)

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

1. $y = 1 + 3\sin 2x$ for $-2\pi \le x \le 2\pi$
2. $y = x + 3\sin 2x$ for $-2\pi \le x \le 2\pi$
3. $y = \cos^{-1} x - \pi$
4. $y = 3\sin x + x$ for $0 \le x \le 4\pi$
5. $y = \sin x + \cos x$ for $-2\pi \le x \le 2\pi$
6. $y = 2\sin x + 3\cos 2x$
7. $y = |x+1| + |x-2|$
8. $y = |x-3| + |5-x| + 1$
9. $y = |x+2| + |2x-5|$
10. $y = |x| + |x+1| + |x-2|$
11. $y = x + e^{x}$
12. $y = x + e^{-x}$
13. $y = 1 - \ln x$
14. $y = x - \ln x$
15. $y = \ln x + \dfrac{1}{x}$
16. $y = \dfrac{1}{x} - \ln x$
17. $y = e^{x} + e^{-x}$
18. $y = e^{x} - e^{-x}$
19. $y = \sqrt{x+1} + \sqrt{1-x}$
20. $y = \sqrt{x-1} - \sqrt{3-x}$

- graph $y = -f(x)$ by initially graphing $y = f(x)$
- graph $y = |f(x)|$ by initially graphing $y = f(x)$
- graph $y = f(-x)$ by initially graphing $y = f(x)$

1. $y = \ln x$, $y = -\ln x$
2. $y = \ln x$, $y = 2 + \ln x^{-1}$
3. $y = x(x-1)(x+2)$, $y = x(1-x)(x+2)$
4. $y = (x-1)^3$, $y = (1-x)^3$
5. $y = x^2 - 3x + 2$, $y = |x^2 - 3x + 2|$
6. $y = x(x^2-1)$, $y = |x(x^2-1)|$
7. $y = \cos x$, $y = |\cos x|$
8. $y = 1 - \cos x$, $y = |1 - \cos x|$
9. $y = -\dfrac{}{x}$ $y = \dfrac{1}{|x|}$
10. $y = \dfrac{1}{x-2}$, $y = \dfrac{1}{|x-2|} + 1$