

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 $y = g(x)$.

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| 1. $y = 1 + 3\sin 2x$ for $-2\pi \leq x \leq 2\pi$ | 2. $y = x + 3\sin 2x$ for $-2\pi \leq x \leq 2\pi$ |
| 3. $y = \cos^{-1} x - \pi$ | 4. $y = 3\sin x + x$ for $0 \leq x \leq 4\pi$ |
| 5. $y = \sin x + \cos x$ for $-2\pi \leq x \leq 2\pi$ | 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. $y = \ln x + \frac{1}{x}$ | 16. $y = \frac{1}{x} - \ln x$ |
| 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 $y = f(x)$

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| 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. $y = \frac{1}{x}$, $y = \frac{1}{ x }$ | 10. $y = \frac{1}{x-2}$, $y = \frac{1}{ x-2 } + 1$ |