

## DL Module 2 Review Key

Graph:

1. $y = -\frac{1}{2} (x-5)  + 3$ <b>Graphing</b>	2. $y = \left -\frac{1}{2}(x-5)\right  + 3$ <b>Graphing</b>
3. What is the h, k, a, and b values for #1? <b>a = -1/2    b=1    h=5    k=3</b>	4. What is the h, k, a, and b values for #2? <b>a = 1    b = -2    h=5    k=3</b>

Solve:

5. $-\frac{1}{2} (x-3)  + 1 = -17$ <b>x = 39, -33</b>	6. $-\frac{1}{2}\left \frac{3}{2}x - 4\right  + 1 = 1$ <b>x = 8/3</b>
7. $-\frac{1}{2}\left \frac{4}{5}(x-3)\right  + 1 = 5$ <b>No solution</b>	8. $3 + 2 3x - 5  = 5$ <b>x = 2, 4/3</b>

Simplify each:

9. $-2\sqrt{27} + 3\sqrt{75} =$ <b><math>-6\sqrt{3} + 15\sqrt{3} = 9\sqrt{3}</math></b>	10. $5\sqrt{18} - 3\sqrt{48} + 2\sqrt{50} =$ <b><math>15\sqrt{2} - 12\sqrt{3} + 10\sqrt{2} = 25\sqrt{2} - 12\sqrt{3}</math></b>
11. $-2\sqrt{22} \cdot 3\sqrt{55} =$ <b><math>-2\sqrt{22} \cdot 3\sqrt{55} = -66\sqrt{10}</math></b>	12. $(2\sqrt{3} - \sqrt{2})(4\sqrt{6} + \sqrt{10}) =$ $(2\sqrt{3} - \sqrt{2})(4\sqrt{6} + \sqrt{10}) =$ <b><math>6\sqrt{18} + 2\sqrt{30} - 4\sqrt{12} - \sqrt{20} =</math> <math>18\sqrt{2} + 2\sqrt{30} - 8\sqrt{3} - 2\sqrt{5}</math></b>

Simplify each:

13. $i^{231} = i^3 = -i$	14. $i^{-231} = \frac{1}{i^3} = \frac{1}{-i} = i$
15. $\frac{i^{23}}{i^{30}} = \frac{1}{i^7} = \frac{1}{i^3} = \frac{1}{-i} = i$	16. $2i^3(5i^{27}) = 2i^3(5i^3) = 10i^6 = 10i^2 = -10$
17. $\sqrt{-3} \cdot \sqrt{-21}$ <b><math>= i\sqrt{3} \cdot i\sqrt{21} = i^2 3\sqrt{7} = -3\sqrt{7}</math></b>	18. $2i\sqrt{-2} \cdot i\sqrt{-12}$ <b><math>= 2i^2\sqrt{2} \cdot i^2 2\sqrt{3} = 4i^4\sqrt{6} = 4\sqrt{6}</math></b>

Perform the operation and simplify:

19. $(1-2i)(3i-7)$ <b><math>3i - 7 - 6i^2 + 14i = -1 + 17i</math></b>	20. $3(1-2i) + 5(3i-7)$ <b><math>= 3 - 6i + 15i - 35 = -32 + 9i</math></b>
21. $3(1+4i) - 4(i-4)$ <b><math>= 3 + 12i - 4i + 16 = 19 + 8i</math></b>	22. $\frac{(1-2i)}{(3i-7)}$ <b><math>= \frac{13-3i}{-58}</math></b>

Simplify:

23. $f(x) = 4x^4 - 2x^3 + 6x^2 + 3x$ <b>find <math>f(i)</math></b> <b><math>f(i) = 4(i)^4 - 2(i)^3 + 6(i)^2 + 3(i)</math> <math>= 4 + 2i - 6 + 3i = -2 + 5i</math></b>	24. $f(x) = 6x^2 - x$ <b>find <math>f(i^2) - f(i^3)</math></b> <b><math>= 6(i^2)^2 - i^2 - (6(i^3)^2 - i^3)</math> <math>= 6 + 1 - (-6 + i) = 13 - i</math></b>
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