

3. Write  $4\log_2 x^3 - \log_2 \sqrt{x}$  as a single simplified logarithm

4. Graph  $g(x) = 2 + 3^x$ . State the transformations of  $y = 3^x$  Used to graph  $g(x)$ .

Solve for x:

5. a.  $2\log_3 x = \log_3(6x + 3)$

b.  $4^{x+3} = 5^{x-3}$

c.  $\log_2(x - 1) + \log_2(x + 3) = 5$

d.  $2^{2x} = 4^{x^2-3}$

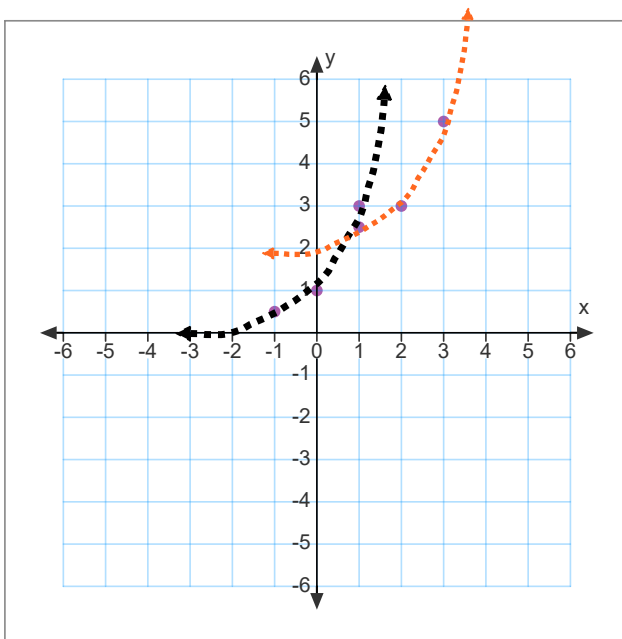
6. Solve these equations:

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5.3 5.4

3. Write  $4\log_2 x^3 - \log_2 \sqrt{x}$  as a single simplified logarithm

$$\log_2 x^{12} - \log_2 x^{1/2} = \log_2 \frac{x^{12}}{x^{1/2}} = \log_2 x^{12-1/2} = \log_2 x^{23/2}$$

4. Graph  $g(x) = 2 + 3^{x-2}$ . State the transformations of  $y = 3^x$  Used to graph  $g(x)$ .



Horizontal shift 2 right  
Vertical shift up 2

Can you graph a  
logarithm??

- 5.
- a.  $x = 3 + 2\sqrt{3}$
  - b.  $x = 40.2754$
  - c.  $x = 5$
  - d.  $(1 \pm \sqrt{13}) / 2$

6. Check your solution manual

Remember!!!

$$\log_b(1) = 0$$

$$\log_b(b) = 1$$

$$b^{\log_b(x)} = x$$

$$\log_b(b^x) = x$$

$$\log_b(xy) = \log_b(x) + \log_b(y)$$

$$\log_b\left(\frac{x}{y}\right) = \log_b(x) - \log_b(y)$$

$$\log_b(x^d) = d \log_b(x)$$

$$\log_a\left(\frac{1}{N}\right) = -\log_a N$$

