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Lesson 4: Getting to the Root of the Problem

Solidify Understanding

Ready

Order the numbers from least to greatest.

1.
A. 100^3
B. $\sqrt{100}$
C. $\log_2 100$
D. 100
E. 2^{10}

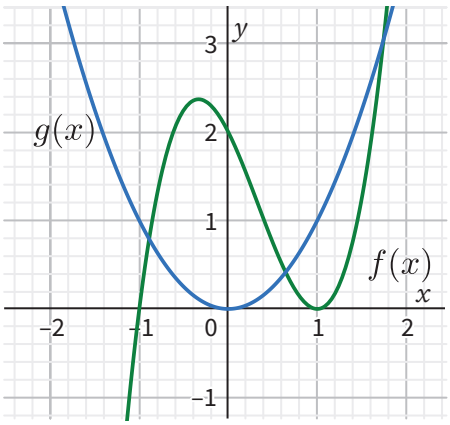
2.
A. 2^{-1}
B. $-\sqrt{100}$
C. $\log_2\left(\frac{1}{8}\right)$
D. 0
E. $(-2)^1$

3.
A. 2^0
B. $\sqrt{25}$
C. $\log_2 8$
D. $2\left(x^0\right), x \neq 0$
E. $(2)^{-\frac{1}{2}}$

4.
A. $\log_3 3^3$
B. $\log_5 5^{-2}$
C. $\log_6 6^0$
D. $\log_4 4^{-1}$
E. $\log_2 2^4$

Refer to the given graph to answer the questions.

Insert $>$, $<$, or $=$ in each statement to make it true.



5. $f(0)$ _____ $g(0)$

6. $f(2)$ _____ $g(2)$

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7. $f(-1)$ _____ $g(-1)$

8. $f(1)$ _____ $g(-1)$

9. $f(5)$ _____ $g(5)$

10. $f(-2)$ _____ $g(-2)$

11. How many times does $f(x)$ equal $g(x)$? How do you know?

Set

Use the given root to find the remaining roots. Then write the function in factored form.

12.

Function	Roots	Factored form
$f(x) = x^3 - 13x^2 + 52x - 60$	$x = 5$ solution:	solution:

13.

Function	Roots	Factored form
$g(x) = x^3 + 6x^2 - 11x - 66$	$x = -6$ solution:	solution:

14.

Function	Roots	Factored form
$p(x) = x^3 + 17x^2 + 92x + 150$	$x = -3$ solution:	solution:

15.

Function	Roots	Factored form
$q(x) = x^4 - 6x^3 + 3x^2 + 12x - 10$	$x = \sqrt{2}$ solution:	solution:

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Go

Multiply. Combine like terms and write your answers in descending order of the exponent.

16. $\left(x-\sqrt{13}\right)\left(x+\sqrt{13}\right)$

17. $\left(x-3\sqrt{2}\right)\left(x+3\sqrt{2}\right)$

18. $(x-4+2i)\,(x-4-2i)$

19. $(x+5+3i)\,(x+5-3i)$

20. $(x-1+i)\,(x-1-i)$

21. $\left(x+10-i\sqrt{2}\right)\left(x+10+i\sqrt{2}\right)$