

Name \_\_\_\_\_

Functions and their Inverses | 1.1

Ready, Set, Go!  
~~ALL~~ ~~ODDS ONLY~~  
 Ready

Topic: inverse operations



Inverse operations "undo" each other. For instance, addition and subtraction are inverse operations. So are multiplication and division. In mathematics, it is often convenient to *undo* several operations in order to solve for a variable.

INVERSE  
 reverse

ALL

Solve for x, in the following problems. Then complete the statement by identifying the operation you used to "undo" the equation.

1.  $24 = 3x$       Undo multiplication by 3 by  $\div 3$
2.  $\frac{x}{5} = -2$       Undo division by 5 by  $\times 5$
3.  $x + 17 = 20$       Undo add 17 by  $-17$
4.  $\sqrt{x} = 6$       Undo the square root by  $\times^2$ ,  $\rightarrow$  square
5.  $\sqrt[3]{(x+1)} = 2$       Undo the cube root by  $\times^3$  then  $-1$
6.  $x^4 = 81$       Undo raising x to the 4<sup>th</sup> power by  $\sqrt[4]{\quad}$
7.  $\sqrt{(x-9)} = 49$       Undo squaring by  $\sqrt{\quad}$  then  $+9$

opposites

+	-
$\times$	$\div$
$\times^2$	$\sqrt{\quad}$
$\times^3$	$\sqrt[3]{\quad}$
$\times^4$	$\sqrt[4]{\quad}$
:	

Go odd

SM

Topic: Using function notation to evaluate a function.

The functions  $f(x)$ ,  $g(x)$ , and  $h(x)$  are defined below. Simplify your answers.

$f(x) = x$

$g(x) = 5x - 12$

$h(x) = x^2 + 4x - 7$

Calculate the indicated function values.

14.  $f(10)$

15.  $f(-2)$   
 $f(-2) = -2$

16.  $f(a)$

17.  $f(a+b) = a+b$

18.  $g(10)$

19.  $g(-2)$   
 $= 5(-2) - 12$   
 $= -10 - 12$   
 $g(-2) = -22$

20.  $g(a)$

21.  $g(a+b)$   
 $5(a+b) - 12$   
 $5a + 5b - 12$

22.  $h(10)$

23.  $h(-2)$   
 $(-2)^2 + 4(-2) - 7$   
 $+4 + -8 - 7$   
 $-4 - 7$   
 $= -11$

24.  $h(a)$   
 $a^2 + 4(a) - 7$   
 $a^2 + 4a - 7$

25.  $h(a+b)$   
 $(a+b)^2 + 4(a+b) - 7$   
 $(a+b)(a+b)$   
 $a^2 + ab + ab + b^2$   
 $a^2 + 2ab + b^2 + 4a + 4b - 7$