

Name	Rule	Examples
ADDING & SUBTRACTING MONOMIALS	$x+x$ COMBINE LIKE TERMS!!! (DO NOT CHANGE common variables and exponents!)	1. $9x^2y - 10x^2y = -1x^2y$ 2. Subtract $6w$ from $8w$ $8w - 6w = 2w$
PRODUCT RULE	$x^a \cdot x^b = x^{a+b}$	1. $h^2 \cdot h^6 = h^8$ 2. $(-2a^2b) \cdot (7a^3b) = 14a^5b^2$
POWER RULE	$(xy)^a = x^a y^a$ $(x^a)^b = x^{a \cdot b}$ $(x+y)^2 = \text{FOIL}$	1. $(x^2)^3 = x^6$ 2. $(-2m^5)^2 \cdot m^3 = 4m^{10} \cdot m^3 = 4m^{13}$
QUOTIENT RULE $(\frac{x}{y})^a = \frac{x^a}{y^a}$	$\frac{x^a}{x^b} = x^{a-b}$	1. $\frac{27x^5}{42x} = \frac{9x^4}{14}$ 2. $\frac{(y^2)^2}{y^4} = \frac{y^4}{y^4} = 1$
NEGATIVE EXPONENT RULE	$x^{-a} = \frac{1}{x^a}, \frac{1}{x^a} = x^{-a}$	1. $-5x^{-2} = -\frac{5}{x^2}$ 2. $\frac{4k^2}{8k^5} = \frac{1}{2k^3}$
ZERO EXPONENT RULE	$x^0 = 1$	1. $7x^0 = 7$ 2. $\frac{(w^4)^2}{w^8} = \frac{w^8}{w^8} = 1$

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Sep 7-9:02 AM

$a(x) = \frac{1}{2}(x-6) = \frac{1}{2}x - 3$ $s(x) = \frac{1}{4}x - 3$

$G(x) = \frac{1}{4}x^2$ $R(x) = \frac{1}{4}(4x)^2$ $n(x) = 4(x+3)$

$W(x) = (4x+2)^2$ $C(x) = \sqrt{4x}$ $Q(x) = 16x^2$

$f(x) = 2x - 6$ $J(x) = \frac{\sqrt{x+2}}{4}$ $U(x) = \frac{1}{2}x - 3$

$e(x) = \frac{\sqrt{x}}{2}$ $m(x) = 4x - 12$ $p(x) = \frac{x+6}{2}$

$P(x) = (4x)^2 - 2$ $y(x) = \frac{\sqrt{x}-2}{4}$ $B(x) = \frac{\sqrt{x}}{4}$

$K(x) = \frac{x+3}{4}$ $H(x) = 2x + 6$ ~~$t(x) = \frac{x+6}{2}$~~

Match these functions into pairs that are inverses of each other

Function	Inverse
$a(x)$	$t(x)$

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Sep 7-9:08 AM

Secondary 3 Name _____

Pre-Test Review Date _____ Period _____

Solve each equation.

1) $a^7 a^{-2} a^3 = a^{7+(-2)+3} = a^8$

2) $\frac{b^{-8}}{b^{-3}} = b^{-8+3} = b^{-5} = \frac{1}{b^5}$

3) $4^{p-1} = 4^2$
 $p-1=2$
 $p=3$

4) $9^{a-3} = 81$
 $9^{a-3} = 9^2$
 $a-3=2$
 $a=5$

5) $16 + 6b = 5(5b - 8) - 5b$
 $16 + 6b = 25b - 40 - 5b$
 $16 + 6b = 20b - 40$
 $+40 -6b -6b +40$
 $56 = 14b$
 $4 = b$

6) $7b + 18 = -8(6 - 5b)$
 $7b + 18 = -48 + 40b$
 $-7b + 18 -18 -40b -7b$
 $6b = 32b$
 $33 = 33$
 $2 = b$

Sep 6-10:49 AM

Write the following exponential equations in Logarithmic form.

7) $18^n = 46$ $\log_{18} 46 = n$

8) $4^b = 12$ $\log_4 12 = b$

Find the inverse of each function. SOLVE and SWITCH

9) $y = 5 - \frac{5}{3}x$
 $-\frac{5}{3}y = (x-5) \cdot \frac{3}{5}$
 $y = \frac{3}{5}x + 3$

10) $y = \frac{15-x}{5}$
 $5x = 15 - y$
 $5x = 15 - y$
 $-15 -15$
 $5x - 15 = -y$
 $-5x + 15 = y$

11) $y = 9x + 5$
 $9y + 5 = x - 5$
 $y = \frac{x-5}{9} - \frac{5}{9}$

12) $y = 2x - 3$
 $x = 2y - 3$
 $\frac{x+3}{2} = \frac{2y}{2}$
 $\frac{x}{2} + \frac{3}{2} = y$

13) $y = \log_4 x$
 $4^y = x$
 $4^x = y$

14) $y = \log_3 x$
 $3^y = x$
 $3^x = y$

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Evaluate each function.

15) $f(x) = 4^x$; Find $f(3)$
 $4^3 = 4 \cdot 4 \cdot 4 = \boxed{64}$

16) $g(x) = 2x + 5$; Find $g(6)$
 $2(6) + 5 = 12 + 5 = \boxed{17}$

17) $p(t) = 3t + 5$; Find $p(10)$
 $3(10) + 5 = 30 + 5 = \boxed{35}$

18) $g(n) = -3n + 3$; Find $g(n-1)$
 $-3(n-1) + 3 = -3n + 3 + 3 = -3n + 6$

19) $f(x) = 3x + 5$; Find $f(-4x)$
 $3(-4x) + 5 = -12x + 5$

20) $h(x) = 3^x$; Find $h(-3)$
 $3^{-3} = \frac{1}{3^3} = \frac{1}{27}$

$f(a+3)$
 $f(x) = (x)^2 + 7$
 $(a+3)^2 + 7$
 $(a+3)(a+3) + 7$
 $a^2 + 6a + 9 + 7$
 $a^2 + 6a + 16$

$(x) + 7$
 $(a+3) + 7$
 $a + 3 + 7$
 $a + 10$

Sep 4-8:54 AM

graph \rightarrow inverse

Find the inverse of each function. Then graph the function and its inverse.

21) $f(x) = 4x + 2$

inverse
 $x - 2 = 4y$
 $x - 2 = \frac{4y}{4}$
 $\frac{x-2}{4} = y$
 $f^{-1}(x) = y = \frac{1}{4}x - \frac{1}{2}$

22) $g(x) = x - 3$

$f^{-1}(x) = \frac{1}{1}x + 3$
 $mx + b$

inverse
 $x = y - 3$
 $+3 \quad +3$
 $x + 3 = y$

Sep 6-10:50 AM

State if the given functions are inverses. Show Proof!

23) $g(x) = x+1$

$f(x) = x-1$

$f(g(x)) = (x+1) - 1$

$x+1 - 1$

$= x$ yes inverses

24) $f(x) = \frac{-3x+9}{2}$

$g(x) = \frac{9-2x}{3}$

$-3\left(\frac{9-2x}{3}\right) + 9$

$\frac{-9 + 2x + 9}{2} = \frac{2x}{2} = x$

$= x$ yes inverses

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