

Algebra II  
G - 6 Handout

1	$1, -\frac{1}{2}, 3a-5$	8)	$3x+3$	15	12	21	$9x$
2	$170, 2,$ $(x-7)^2+1$	9)	13	16	$x^2+3$	22	$x+2$
3	$-24, a^2-a,$ $(x+2)^2-(x+2)$	10	-17	17	$3x^2+6$	23	$(x^2+2)^2+2$
4	$\frac{1}{x+2}, \emptyset, 3$	11	$3x+1$	18	11	24	No
5	12	12	18	19	$(x+1)^2+2$	25	Yes
6	3	13	38	20	$(3x+1)^2+2$	26	Proof
7	-15	14	$9x^2+2$				

4)  $q(x) = \frac{1}{x}$

a)  $q(x+2) = \frac{1}{x+2}$

b)  $q(0) = \frac{1}{0} = \emptyset$

c)  $q(\frac{1}{3}) = \frac{1}{\frac{1}{3}} = 1 \div \frac{1}{3} = 1 \cdot \frac{3}{1} = 3$

3)  $r(x) = x^2 \cdot x$

c)  $r(x+2) = (x+2)^2 \cdot (x+2)$

$F(x) = 3x$      $g(x) = x+1$      $h(x) = x^2+2$

7)  $F(g(-6))$

$g(-6) = (-6)+1 = -5$

$F(-5) = 3(-5) = -15$

14)  $h(F(x)) =$

$F(x) = 3x$

$h(3x) = (3x)^2+2$

21)  $F(F(x)) =$

$F(x) = 3x$

$F(3x) = 3(3x) = 9x$

24)  $p(x) = 5x+3$      $q(x) = -5x-3$

1)  $F(q(x)) = x$

2)  $g(F(x)) = x$

1)  $q(p(x)) = q(5x+3) = 5(-5x-3)+3 = -25x-15+3 = -25x-12$

Not inverse

25)  $F(x) = -2x+3$

$g(x) = -\frac{1}{2}x + \frac{3}{2}$

1)  $F(g(x)) = F(-\frac{1}{2}x + \frac{3}{2}) = -2(-\frac{1}{2}x + \frac{3}{2}) + 3 = x - 3 + 3 = x$

2)  $g(F(x)) = g(-2x+3) = -\frac{1}{2}(-2x+3) + \frac{3}{2} = x - \frac{3}{2} + \frac{3}{2} = x$

Yes, inverses!

26) Show  $A^{-1}(x) = Ax$

inverse of  $A(x)$  is the same as  $A(x)$

$A(x) = \frac{1}{x}$

$A(A(x)) = A(\frac{1}{x}) = \frac{1}{\frac{1}{x}} = x$

