Algebra: Evaluating Composition of Functions

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Name: _____ Date: _____ Score: _____

DIRECTIONS *Evaluate each composition. Substitute the inner function result into the outer function.*

1 Find f(g(2)):

$f(x)=2x+1,\ g(x)=x+3$

Answer: _____

2 Find g(f(3)):

$f(x)=2x+1,\ g(x)=x+3$

Answer: _____

3 Find f(g(0)):

$f(x)=x^2-1,\ g(x)=x+2$

Answer: _____

4 Find g(f(1)):

$f(x)=x^2-1,\ g(x)=x+2$

Answer: _____

5 Find f(g(-1)):

$f(x)=3x,\ g(x)=x^2+1$

Answer: _____

6 Find g(f(-1)):

$f(x)=3x,\ g(x)=x^2+1$

Answer: _____

7 Find f(g(4)):

$f(x)=\sqrt{x},\ g(x)=x-4$

Answer: _____

8 Find f(g(8)):

$f(x)=\sqrt{x},\ g(x)=x-4$

Answer: _____

9 Find (f■g)(2):

$f(x)=x+5,\ g(x)=2x$

Answer: _____

10 Find (g■f)(2):

$f(x)=x+5,\ g(x)=2x$

Answer: _____

Answer Key & Solutions

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TEACHER NOTES *Work inside-out: evaluate g(x) first, then substitute that value into f. Order matters: f(g(x)) ≠ g(f(x)) in general.*

1 f(x)=2x+1, g(x)=x+3; f(g(2))

= 11

g(2)=5, then f(5)=2(5)+1=11

2 f(x)=2x+1, g(x)=x+3; g(f(3))

= 10

f(3)=7, then g(7)=7+3=10

3 f(x)=x²-1, g(x)=x+2; f(g(0))

= 3

g(0)=2, then f(2)=4-1=3

4 f(x)=x²-1, g(x)=x+2; g(f(1))

= 2

f(1)=0, then g(0)=0+2=2

5 f(x)=3x, g(x)=x²+1; f(g(-1))

= 6

g(-1)=2, then f(2)=3(2)=6

6 f(x)=3x, g(x)=x²+1; g(f(-1))

= 10

f(-1)=-3, then g(-3)=9+1=10

7 f(x)=sqrt(x), g(x)=x-4; f(g(4))

= 0

g(4)=0, then f(0)=√0=0

8 f(x)=sqrt(x), g(x)=x-4; f(g(8))

= 2

g(8)=4, then f(4)=√4=2

9 f(x)=x+5, g(x)=2x; (fog)(2)

= 9

g(2)=4, then f(4)=4+5=9

10 f(x)=x+5, g(x)=2x; (gof)(2)

= 14

f(2)=7, then g(7)=2(7)=14