Algebra 2 with Support
Combining Functions Test REVIEW
Spring 2017

Name _____ Date: _____ Class: _____

Multiple Choice. Choose the best answer.

g(x)=$10x^3+9$	h(x)=7x-5	$(10x^3+9)-(7x-5)$

B 1. Which set of function operations would give us an answer of $10x^3-7x+14$?

A. $g(x)\bullet h(x)$ B. $g(x)-h(x)$ C. $g(x)+h(x)$ D. none

C 2. Which set of function operations would give us an answer of $10x^3+7x+4$?

A. $g(x)\bullet h(x)$ B. $g(x)-h(x)$ C. $g(x)+h(x)$ D. none

D 3. Which set of function operations would give us an answer of $\frac{10x^3+9}{7x-5}$?

A. $g(x)\bullet h(x)$ B. $g(x)-h(x)$ C. $2g(x)\bullet h(x)$ D. none

3395 4. Evaluate the function g(7) –h(7)

$g(7)=10(7)^3+9$
$10(343)+9$
$3430+9$
3439

$h(7)=7(7)-5$
$=49-5$
$=44$

$3439-44$
3395

-1281 5. Evaluate the function g(-5) + h(-5)

$10(-5)^3+9$
$10(-125)+9$
$-1250+9$
-1241

$7(-5)-5$
-40

$-1241+-40$
-1281

7299 6. Evaluate g(h(2))

$h(2)=7(2)-5$
$14-5$
9 →

$g(9)$
$10(9)^3+9$
$10(729)+9$
$7290+9$
7299

$70x^3+58$ 7. Simplify h(g(x))

$7(10x^3+9)-5$
$70x^3+63-5$
$70x^3+58$

Algebra 2 Name_____ ID: 1

Combining Functions Test Review

Date_____ Period____

Perform the indicated operation.

1) $g(x) = x^2 + 1$
$h(x) = 4x + 5$
Find $g(x) \div h(x)$

$$\frac{x^2+1}{4x+5}$$

2) $h(n) = -3n^2 + 4$
$g(n) = 3n - 2$
Find $h(n) + g(n)$

$(-3n^2+4) + (3n-2)$

$-3n^2 + 3n + 2$

3) $f(t) = 3t + 5$
$g(t) = t^2 - t$
Find $f(t) + g(t)$

$(3t+5) + (t^2-t)$

$t^2 + 2t + 5$

4) $g(n) = n - 3$
$f(n) = 3n + 4$
Find $g(n) \cdot f(n)$

$(n-3)(3n+4)$

$3n^2 + 4n - 9n - 12$

$3n^2 - 5n - 12$

5) $g(n) = 4n - 2$
$f(n) = -2n + 2$
Find $g(4) \cdot f(4)$

$g(4) = 4(4) - 2$
$16 - 2$
14

$f(4) = -2(4) + 2$
$= -8 + 2$
$= -6$

$14 \cdot -6$

-84

6) $f(n) = n^2 - 2n$
$g(n) = -3n - 4$
Find $f(10) - g(10)$

$f(10)$
$100 - 20$
80

$g(10)$
$-3(10) - 4$
$-30 - 4$
-34

$80 - (-34)$

114

7) $g(x) = -x^2 + 3x$
$h(x) = x - 4$
Find $g(5) \cdot h(5)$

$-(5)^2 + 3(5)$
$-25 + 15$
$-10 \cdot 1$

-10

8) $f(x) = 4x - 3$
$g(x) = x^2 - x$
Find $f(9) + g(9)$

$4(9) - 3$
33

$9^2 - 9$
$81 - 9$
72

$+$

105

9) $g(a) = 3a + 1$
$h(a) = 3a + 3$
Find $g(h(5))$

$3(18)+1 \rightarrow 54+1$
55

$3(5)+3$
$15+3$
18

$3\,|\,3a+3\,|\,+1$
$9a+9+1$
$9a+10 \rightarrow 55$

10) $f(x) = x + 3$
$g(x) = x^2 - 3x$
Find $f(g(3))$

ANSWER: 3

$x^2-3x\,|\,+3$
$x^2 - 3x + 3 \rightarrow ?$

11) $f(n) = 3n + 5$
$g(n) = -2n + 4$
Find $f(g(-8))$

find $g(-8)$ first
$-2(-8)+4$
$16+4$
20

$f(20) = 3(20)+5$
$60+5$
65

12) $g(n) = 2n - 3$
$h(n) = n^2 + 4$
Find $g(h(7))$

find $h(7)$ first
$h(7) = 7^2+4$
$49+4$
53

$g(53) = 2(53)-3$
$106-3$
103

13) $f(x) = 2x - 5$
$g(x) = -x^3 - x$
Find $f(g(x))$

$2\,|\,-x^3-x\,|\,-5$
$-2x^3 - 2x - 5$

14) $f(x) = 3x - 2$
$g(x) = -2x^3 + 4x$
Find $f(g(x))$

$3\,|\,-2x^3+4x\,|\,-2$
$-6x^3 + 12x - 2$

15) $g(a) = 3a + 1$
$f(a) = -2a^3 + 5a^2$
Find $g(f(a))$

$3\,|\,-2a^3+5a^2\,|\,+1$
$-6a^3 + 15a^2 + 1$

16) $g(x) = 2x - 3$
$h(x) = 4x + 5$
Find $g(h(x))$

DISTRIBUTE
$2\,|\,4x+5\,|\,-3$
$8x+10\,-3$
$8x+7$

Function Operations and Composition Name _____

Let $f(x) = x + 7$, $g(x) = -4x$, and $h(x) = x^2 + 6$. Compute the following:

1. $f(x) \cdot g(x)$ distribute

$(x+7)(-4x)$

$-4x^2 - 28x$

2. $5h(x) - 2(f(x))$

$5(x^2+6) - 2(x+7)$

$5x^2 + 30 - 2x - 14$

$5x^2 - 2x + 16$

3. $3f(x) - g(x)$

$3(x+7) - (-4x)$

$3x + 21 + 4x$

$7x + 21$

4. $\frac{h(x)}{f(x)}$

$\frac{x^2+6}{x+7}$

5. $h(x) \cdot f(x)$

$(x^2+6)(x+7)$

$x^3 + 7x^2 + 6x + 42$

6. $3g(x) + 4f(x)$

$3(-4x) + 4(x+7)$

$-12x + 4x + 28$

$-8x + 28$

7. $f(g(x))$

$\boxed{-4x} + 7$

$-4x + 7$

8. $f(h(x))$

$\boxed{x^2+6} + 7$

$x^2 + 13$

9. $g(h(x))$

$-4\boxed{x^2+6}$

$-4x^2 - 24$

10. $f(g(5))$ $g(5) = -4(5)$

$= -20$

$f(-20)$

$-20 + 7$

-13

11. $f(h(6))$

$h(6) = 6^2 + 6$

$= 36 + 6$

$= 42$

$f(42) = 42 + 7$

$= 49$

12. $g(h(0))$

$h(0) = 0^2 + 6$

$= 6$

$g(6) = -4(6)$

$= -24$