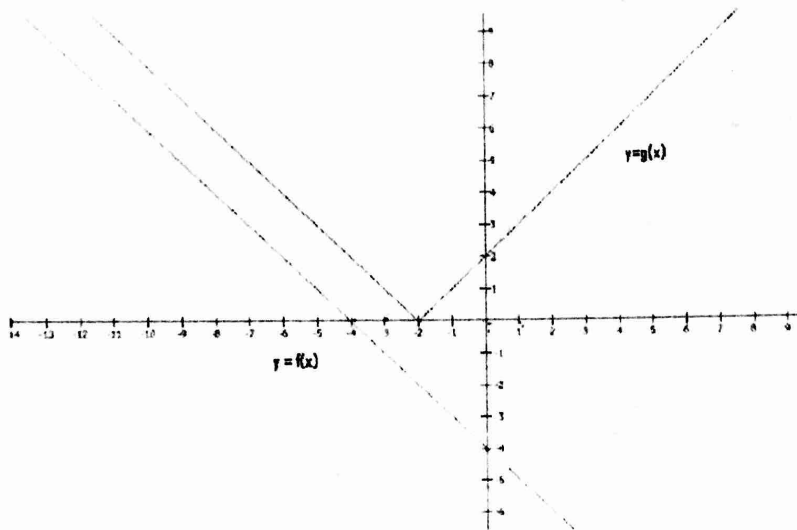


Pre-Calculus  
Evaluating Functions and Operations

22 F 11

Name "(22-x)/22" Hour \_\_\_\_\_

1. Use the graphs to complete the compositions.



a)  $(f \circ g)(-2) = -4$

b)  $(f \circ g)(-3) = -6$

c)  $(f - g)(0) = -6$

d)  $(g \circ f)(0) = 7$

e)  $(g \circ f)(-4) = 2$

f)  $(g + f)(1) = 2$

2. To print a novel, it costs \$500 plus \$4 per book. Each book sells for \$16.

a)  $C(x)$  represents the cost per order of  $x$  books. Find  $C(x)$ .

$500 + 4x = C(x)$

b)  $R(x)$  represents the total money earned from selling books. Find  $R(x)$ .

$R(x) = 16x$

c)  $P(x)$  represent the profit which takes the revenue  $R(x)$  and subtracts the cost  $C(x)$ . Find  $P(x)$ .

$P(x) = 16x - (500 + 4x)$

d) Find the profit if 1200 books are sold.

$P(1200) = 16(1200) - [500 + 4(1200)] = 19200 - 5300 = 13900$

2. The first two tables list values for  $f(x)$  and  $g(x)$ . Complete the composition  $f(g(x))$  in the third table.

$x$	$f(x)$
0	5
1	7
2	9
3	7
4	1

$x$	$g(x)$
1	2
3	6
5	10
7	8
9	4

$x$	$g(f(x))$
0	10
1	8
2	4
3	8
4	2

7. Evaluate  $f(2a)$  for  $f(x) = 2x^2 - 1$ .

$2(2a)^2 - 1$   
 $8a^2 - 1$

8. Simplify  $f(a) + f(2)$  for the function  $f(x) = 117$ .

$$117 + 117 = 234$$

9. Evaluate  $f(a + h)$  for  $f(x) = 3x^2 + 3x - 2$ .

$$3(a+h)^2 + 3(a+h) - 2$$

$$3a^2 + 6ah + 3h^2 + 3a + 3h - 2$$

10. Evaluate  $f\left(\frac{2}{a}\right)$  for  $f(x) = \frac{2}{x}$ .

$$\frac{\frac{2}{\frac{2}{a}}}{\frac{2}{a}} = \frac{2a}{2} = a$$

11. Evaluate  $\frac{f(a)}{2}$  for  $f(x) = \frac{2}{x}$ .

$$\frac{\frac{2}{a}}{\frac{2}{1}} = \frac{1}{a}$$

12. Describe any similarities and difference in the evaluation of questions 10 and 11.

reciprocal

13. Evaluate and simplify  $f\left(\frac{2}{a}\right)$  for  $f(x) = \frac{3}{4-x}$ . Hint: to be completely simplified, there can be no complex fractions.

$$\frac{3}{\frac{4}{a} - \frac{2}{a}} = \frac{3}{\frac{4a-2}{a}} = \frac{3a}{4a-2}$$