Algebra 2 w/ Trig

3.3 Perform Operations and Compositions of Functions

Warm-Up:

**Perform the indicated operation. Assume all variables are positive. Let** *f*(*x*) = 3*x* + 5 **and** *g*(*x*) = 2*x*2 –7**. Find the following.**

----------------------------------------------------------------------NOTES---------------------------------------------------------------------------------

Example 1: Add and Subtract Functions

**Let** *f* (*x*)= 4*x*1/2**and** *g*(*x*)= –9*x*1/2**. Find the following.**



Example 2: Multiply and Divide Functions

**Let** *f* (*x*)= 6*x***and** *g*(*x*) = *x*3/4**. Find the following.**

Example 3: Solving a Multistep Problem

YOU TRY:

**Let** *f* (*x*) = –2*x*2/3 **and** *g*(*x*) = 7*x*2/3**. Find the following.**



**Let** *f* (*x*) = 3*x* **and** *g*(*x*) = *x*1/5**. Find the following.**





Example 4: Multiple Choice!!!



Example 5: Find Compositions of Functions

**Let** *f*(*x*) = 4*x*–1 **and** *g*(*x*) = 5*x* – 2**. Find the following.**



**d. What is the domain of f(g(x)) and g(f(x))?**

Example 6: Solve a Multi-Step Problem

**You have a** $10 **gift certificate to a paint store. The store is offering** 15% **off your entire purchase of any paints and painting supplies. You decide to purchase a** $30 **can of paint and** $25 **worth of painting supplies**.

**Use composition of functions to do the following:**

* **Find the sale price of your purchase when the** $10 **gift certificate is applied before the** 15% **discount**.
* **Find the sale price of your purchase when the 15% discount is applied before the $10 gift certificate.**

YOU TRY:

**Let** *f*(*x*) = 3*x* – 8 **and** *g*(*x*) = 2*x*2**. Find the following.**





13. **What If? In Example** 6**, how do your answers change if the gift certificate to the paint store is** $15 **and the store discount is** 20%**?**

Hw: Section 3.3 p. 184 #3-35 odds

KEEP GOING:

**Let** *f*(*x*) = – 2*x*1/4 **and** *g*(*x*) = 6*x*1/4**. Find the following.**

**1.** *f*(*x*) + *g*(*x*) **2.** *g*(*x*) – *f*(*x*) **3.** *g*(*x*) $∙$ *g*(*x*) **4.** **the domain of** *f* $∙$ *g*





**Let** *f*(*x*) = 5*x*–3**and** *g*(*x*) = –*x*2 + 2**. Find the following.**

**9. You have a** $25 **gift certificate for a book store. The** **store is offering** 10% **off all books. When should** **you use the certificate, before or after the** 10% **discount?**

**7.** *g*( *f* (–2)) **8.** *f*(*g*(*x*))