Bellwork Alg 2 Tuesday, September 11, 2018

Use the following functions:

$f(x) = -3x + 8$ $g(x) = 2x - 3$ $h(x) = x^2 + 5x - 6$

1. Find $h(f(5))$

2. Find $g(f(x))$. Simplify answer.

Factor each completely.

3. $54x^5 - 150x$

4. $2x^3 + 7x^2 - 8x - 28$

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Use the following functions:

$f(x) = -3x + 8$ $g(x) = 2x - 3$ $h(x) = x^2 + 5x - 6$

1. Find $h(f(5))$

1st $f(5) = -3(5) + 8$
$= -15 + 8$
$= -7$

2nd $h(f(5))$ becomes
$h(-7)$
$= (-7)^2 + 5(-7) - 6$
$= 49 - 35 - 6$
$h(f(5)) = \boxed{8}$

2. Find $g(f(x))$. Simplify answer.

replace x in $g(x)$ with $-3x+8$

$g(f(x)) = 2(-3x+8) - 3$
$= -6x + 16 - 3$
$g(f(x)) = \boxed{-6x + 13}$

Factor each completely.

3. $54x^5 - 150x$

1ST: GCF of $6x$
$= 6x(9x^4 - 25)$

2ND: FACTOR THIS USING DIFFERENCE OF PERFECT SQUARES

$= \boxed{6x(3x^2+5)(3x^2-5)}$

You could factor this more if 3 & 5 were perfect squares

4. $2x^3 + 7x^2 - 8x - 28$

1ST: GCF → NONE

2ND: Place the 4 Terms in "The Box" and factor.

	$2x$	$+7$
x^2	$2x^3$	$+7x^2$
-4	$-8x$	-28

3rd $= (2x+7)(x^2-4)$

FACTOR USING DIFFERENCE OF PERFECT SQUARES

$\boxed{(2x+7)(x \pm 2)}$