HW 5.5

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1 a) $y = 3f(x-2) + 4$

$x - 2 = 3 \qquad x = 8$

$y = 3 \times 12 + 4 \qquad y = 40$

$\boxed{(8, 40)}$

c) $f(x) \to f(-x) \to f(-x+3)$

hr 3 left

$x = 6 \to -6 \to -3$

$\frac{1}{4}f(-x+3) \quad -\frac{1}{4}f(-x+3) \quad -\frac{1}{4}f(-x+3)+7$

vc by $\frac{1}{4}$ $\to$ vr $\to$ 7 up

$y = 12 \to 3 \to -3 \to 4$

$\boxed{(-3, 4)}$

b) $y = f(3x-6) + 5$

$3x - 6 = 6 \qquad x = 4$

$y = 12 + 5 \qquad y = 17$

$\boxed{(4, 17)}$

f2 12.

$(x+1)(x^2+1)(x^4+1)(x^8+1)\cdots(x^{128}+1)$ Every integer has a unique binary expansion

$$= \sum_{k=0}^{255} x^k = \frac{x^{256}-1}{x-1} = -2\left(\frac{1}{2^{256}} - 1\right)$$

$$= 2 - \frac{1}{2^{255}} \qquad \boxed{k = -255}$$