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Ch. 3

Ex. 10

$$70 \quad \frac{g(x+h) - g(x)}{h}$$

$$g(x) = 1 - 2x$$

$$\frac{1 - 2(x+h) - 1 + 2x}{h}$$

$$\frac{-2h}{h} = \boxed{-2}$$

Ch. 5

$$16 \quad f(x) = e^{x+1}$$

$$y = e^{x+1}$$

$$x = e^{y+1}$$

$$\ln(x) = \ln(e^{y+1}) =$$

$$y+1$$

$$\ln(x) = y+1$$

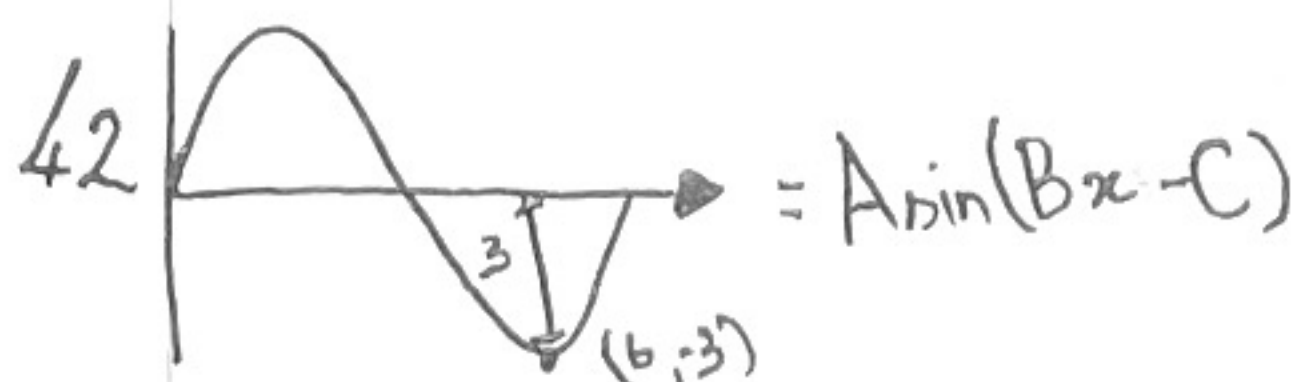
$$y = \ln(x) - 1$$

$$f^{-1}(x) = \ln(x) - 1$$

Domain of $f^{-1} = (0, \infty)$

cont. \rightarrow

Ch. 7



$$A = 3$$

$$\frac{3}{4} \text{ Period} = 6$$

$$\text{Period} = 8$$

$$\frac{2\pi}{B} = 8; B = \frac{\pi}{4}, C = 0$$

$$3 \sin\left(\frac{\pi x}{4}\right)$$

Ch. 8

20 $\cos^4 x - \sin^4 x = \cos 2x =$

$$\cos^4 x - \sin^4 x = \cos^2 x - \sin^2 x =$$

$$(\cos^2 x + \sin^2 x)(\cos^2 x - \sin^2 x) =$$

$$\cos^2 x + \sin^2 x = 1 =$$

$$1 = 1$$

54 $\sin x + \sin 2x = 0$

$$\sin x + 2\cos x \sin x = 0$$

$$(1 + 2\cos x) \sin x = 0$$

$$\cos^2 x = 0$$

$$\cos x = 0$$

$$x = \frac{\pi}{2}, \frac{3\pi}{2}$$

Ch. 12

21 if r is a root, then $f(r) = 0$

a. $f(r-h+h) = f(r) = 0$

b. $f(-(-r)) = f(r) = 0$

c. $f(kr/k) = f(r) = 0$

Ch. 13

10 BC: $9-1 = 8$; $8/8 = 1$

$S_k: 9^k - 1 = 8i$; $9^k = 8i+1$

~~S_{k+1}~~ $S_{k+1}: 9^{k+1} - 1 = 8j = 9 \cdot 9^k - 1 = 9(8i+1) - 1 = 72i + 9 - 1 =$
 $8 \cdot (9i+1)$

56 $S = \frac{a_1}{1-r}$

$r = 1 + \sqrt{2}$

$\frac{1}{1-1-\sqrt{2}} =$

$-\frac{1}{\sqrt{2}}$