

Sect 2.1 #3

$$f(x) = x^2 - 9$$

degree = 2

x intercepts

y intercepts

$$x^2 - 9 = 0 \Rightarrow x = \pm 3 \quad (3, 0), (-3, 0)$$

$$(0, -9)$$

#8 $f(x) = 2(-5x)(x-6)(x+1)$

degree = 3

x intercepts

y intercepts

$$(2.5, 0), (6, 0), (-1, 0)$$

$$f(0) = 2(-6)(1) = -12 \quad (0, -12)$$

#19 a polynomial of degree = 8 has a maximum of $8 - 1 = 7$ turning pts.

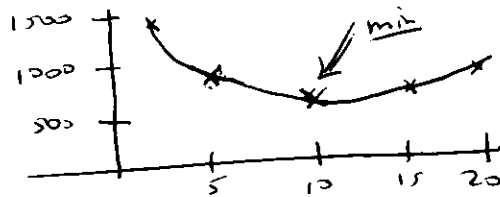
#59 $C(n) = 2500 + 175n + 25n^2$

(A) $\bar{C} = \frac{C(n)}{n} = \frac{2500}{n} + 175 + 25n$ or

$$\frac{2500 + 175n + 25n^2}{n}$$

(B)

n	\bar{C}
2	1475
5	800
10	675
15	716.67
20	800



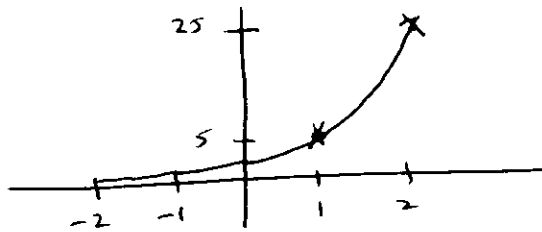
(10, 675)
(will be shown later by calculus)

Sect 2.2

#3

$$y = 5^x \quad [-2, 2]$$

x	y
-2	$1/25 = 0.04$
-1	$1/5 = 0.2$
0	1
1	5
2	25



#19

$$(2e^{1.2t})^3 = 2^3 e^{1.2t(3)} = \underline{8e^{3.6t}}$$

#63

$$P = 7500$$

$$r = 8.35\% = 0.0835$$

$$t = 5.5 \text{ or } 12$$

$$A = Pe^{rt} = 7500 e^{0.0835(5.5)} = 7500 e^{0.45925} = 11,871.65$$

$$7500 e^{0.0835(12)} = 7500 e^{1.002} = 20,427.93$$

sect 2.3

#21 $\log_2 2^{-3} = \underline{\underline{-3}}$

#37 $\log_4 x = \frac{1}{2} \Rightarrow 4^{\frac{1}{2}} = x \quad \therefore x = \sqrt{4} = \underline{\underline{2}}$

#57 $\log_b x + \log_b (x-4) = \log_b 21$

$x(x-4) = 21 \quad x^2 - 4x - 21 = 0 \Rightarrow (x-7)(x+3) = 0$

$x = 7$ (note: $x = -3$ not allowed)

#97

$30,000 = 20,000 e^{r(6)} \Rightarrow$

$e^{6r} = 1.5$

$6r = \ln(1.5)$

$r = \frac{\ln(1.5)}{6} = 0.06758 \quad (\underline{\underline{6.758\%}})$

#106

$A = A_0 e^{-0.000124t}$

$0.1 A_0 = A_0 e^{-0.000124t}$

$0.1 = e^{-0.000124t}$

$-0.000124t = \ln(0.1) = -2.30258$

$t = \frac{-2.30258}{-0.000124} = \underline{\underline{18,569 \text{ yrs}}}$

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Prof. R.B. Goldstein
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Chap 2