MA 224 Even Answers

Section 9.1

6) Show y is a solution.

14) $y = y_0 e^{-x^2}$

20) $\dfrac{dS}{dt} = k\left(D - S\right)$

Section 9.2

2) $y = \sqrt{\dfrac{2}{3}x^3 + C}$

6) $y = 1 + ce^{2x}$

8) $y = C\left(x+1\right)^2$

20) $y = x$

34) $y = \sqrt[k]{x}$

Section 9.3

2) 12,500 bacteria

4) 4.75 years

6) 6.9 years

8) $T = 30 + 70e^{-0.1865t}$; 57.5° C

10) 68.75 words/minute

14) $13,550

Section 10.1

4) Show is a probability function

6) Show is a probability function.

14) $k = \dfrac{1}{8}$

18) $k = \dfrac{1}{\ln 5}$

22) (a) $\dfrac{7}{27}$

(b) $\dfrac{26}{27}$

(c) $\dfrac{8}{27}$

(d) 0

26) (a) $-e^{-2} + 1 \approx 0.8647$

(b) $-e^{-1} + e^{-\frac{1}{2}} \approx 0.2387$

(c) 0

(d) $e^{-1} \approx 0.3679$

Section 10.1 (con't)

44) (a) $e^{-1} \approx 0.3679$

(b) $-e^{-\frac{4}{5}} + e^{-\frac{2}{3}} \approx 0.0641$

46) $e^{-1} \approx 0.3679$

50) $\dfrac{7}{27} \approx 0.2593$

Section 11.1

4) $P_1(x) = -1 + (x-2)$

$P_2(x) = -1 + (x-2) - (x-2)^2$

$P_3(x) = -1 + (x-2) - (x-2)^2 + (x-2)^3$

12) $P_3(x) = -1 + 5(x+1) - 10(x+1)^2 + 10(x+1)^3$

22) $P_3\left(x\right) = 1 + \dfrac{3}{2}x - \dfrac{9}{8}x^2 + \dfrac{27}{16}x^3$

$P_3\left(0.2\right) = 1.2685$

$f\left(0.2\right) = 1.2649$

Section 11.2

12) $a_n = \dfrac{1}{4n-1}$

14) $a_n = \left(\dfrac{2}{3}\right)^{n-1}$

30) 0

34) 0

36) $\dfrac{1}{2}$

40) 0

Section 11.3

6) $\dfrac{12}{5}$

10) 6

16) $\dfrac{e}{3\left(3-e\right)}$

18) $\dfrac{5}{4}$

32) $1 < x < 3;\ \dfrac{1}{3-x}$

34) $-\sqrt{3} < x < \sqrt{3};\ \dfrac{3}{3-x^2}$

36) 30 meters

MA 224 Even Answers

Section 11.5

2) $R = 2$; converges on $(-2, 2)$

6) $R = \frac{3}{2}$; converges on $\left(-\frac{3}{2}, \frac{3}{2}\right)$

8) $R = 0$; converges only at $x = 0$

10) $R = 1$; converges on $(-1, 1)$

Section 11.6

2) $\sum_{n=0}^{\infty} \frac{(-1)^n}{2^{n+1}}(x-1)^n$; converges on $(-1, 3)$

4) $\sum_{n=0}^{\infty} 2^n x^{n+1}$; converges on $\left(-\frac{1}{2}, \frac{1}{2}\right)$

12) $\sum_{n=0}^{\infty} \frac{x^{n+1}}{n!2^n}$; converges on $(-\infty, \infty)$

24) $\sum_{n=0}^{\infty} \frac{(-1)^n}{n+1} x^{2n+2} = \sum_{n=1}^{\infty} \frac{(-1)^{n+1}}{n} x^{2n}$

26) 0.0204

28) 0.4483