Solutions for *Elementary Mathematical Analysis*

You'll need to create a new file for the solution of each problem in the solutions subdirectory. Also, if you rename your main file, change TextbookExample in this document (two places) to your new name.

Contents

Introduction

Functions

Section 1.1 Lab (Patterns All Around Us)

L1 (lab:L1)

No Solution File Found

L2 (lab:L2)

No Solution File Found

L3 (lab:L3)

No Solution File Found

L4 (lab:L4)

No Solution File Found

L5 (lab:L5)

No Solution File Found

L6 (lab:L6)

No Solution File Found

L7 (lab:L7)

No Solution File Found

L8 (lab:L8)

No Solution File Found

Section 1.4 Lab (Through the Looking Glass)

L1 (lab:L1)

No Solution File Found

L2 (lab:L2)

No Solution File Found

L3 (lab:L3)

No Solution File Found

L4 (lab:L4)

No Solution File Found

L5 (lab:L5)

No Solution File Found

L6 (lab:L6)

No Solution File Found

L7 (lab:L7)

No Solution File Found

L8 (lab:L8)

No Solution File Found

L9 (lab:L9)

No Solution File Found

Section 1.5 Exercises

P1 (0105Quad1)

a. $y \approx 1.09578x^2 - 2.69643x + 1.13637$

b. $y \approx -1.48736x^2 + 5.86598x - 8.11229$

P2 (0105Quad2)

a. $y \approx -0.57142x^2 + 2.2x + 1.94286$

b. $y \approx -1.48736x^2 + 5.86598x - 8.11229$

P3 (0105Arch)

a. $23.557x - 24.427$

b. 1248 cm

P4 (0105ModelDay)

From day 28 to 314, hence 286 days.

P5 (0105Hourly)

a. insert graphic

b. $y \approx .4089x + 9.8601$

c. 98.6%. It would seem so...

d. $0.0124x^2 + .2473x + 10.1241$

e. 99.8%. Yes, more so than the linear.

f. Individual results will vary.

P6 (0105traffic)

a. $y \approx -0.00746x^2 + 1.14821 + 4.80714$

b. 47.9 ft

P7 (0105LM1)

a. $\frac{2}{5}x + \frac{5}{2} = y$

b. $0 = y$

c. $\frac{23}{11}x - \frac{27}{22} = y$

d. $\frac{9}{23}x - \frac{19}{5} = y$

P8 (0105LM2)

a. $-\frac{5}{4}x - \frac{3}{4} = y$

b. $x = y$

c. $-4x + \frac{11}{3} = y$

d. $-\frac{484}{225} + \frac{7894}{5625} = y$

P9 (0105high)

NY $y \approx 25.61 \cdot \sin(.5090x - 2.0685) + 56.8797$

DC $y \approx 22.7410 \cdot \sin(.4946x - 1.9503) + 65.3889$

TX $y \approx 17.742 \cdot \sin(.5043x - 2.0110) + 79.1803$

They will never intersect.

P10 (0105sun)

a. $y \approx 32.2267 \sin(.3993x - .5706) + 26.9744$

b. 40.3

P11 (0105newton)

a. insert graphic

b. r^2=99.98%

c. $T(x) \approx 118.0705 \cdot .9511^x + 72.$

d. It seems exceedingly close to the data.

Limits

Section 2.1 Lab (Removing the Hole)

L1 (lab:L1)

No Solution File Found

L2 (lab:L2)

No Solution File Found

L3 (lab:L3)

No Solution File Found

L4 (lab:L4)

No Solution File Found

L5 (lab:L5)

No Solution File Found

L6 (lab:L6)

No Solution File Found

L7 (lab:L7)

No Solution File Found

L8 (lab:L8)

No Solution File Found

L9 (lab:L9)

No Solution File Found

L10 (lab:L10)

No Solution File Found

L11 (lab:L11)

No Solution File Found

Section 2.1 Exercises

P12 (0201Remove1)

a. 5

b. $\frac{1}{6}$

c. 5

d. $\frac{11}{12}$

e. $-\frac{1}{9}$

f. $-\frac{1}{2}$

P13 (0201Remove2)

a. 3

b. $\frac{3}{2}$

c. 0

d. $\frac{3}{7}$

e. $-\frac{4}{5}$

f. $\frac{1}{8}$

Parents

Section 3.1 Lab (In Pieces)

L1 (lab:L1)

No Solution File Found

L2 (lab:L2)

No Solution File Found

L3 (lab:L3)

No Solution File Found

L4 (lab:L4)

No Solution File Found

L5 (lab:L5)

No Solution File Found

L6 (lab:L6)

No Solution File Found

L7 (lab:L7)

No Solution File Found

L8 (lab:L8)

No Solution File Found

Section 3.1 Exercises

P9 (0301ParaPerpA)

a. a) $y = -x - 1$ b) $y = x + 5$

b. a) $y = -\frac{5}{3}x + \frac{53}{24}$ b) $y = \frac{3}{5}x + \frac{9}{40}$

c. a) $x = 2$ b) $y = 5$

d. a) $y = 1$ b) $x = 2$

e. a) $y = -3x - 13.1$ b) $y = \frac{1}{3}x - 0.1$

P10 (0301ParaPerpB)

No Solution File Found

P11 (0301GrapherA)

a is parallel to c and b is perpendicular to them both

P12 (0301GrapherB)

No Solution File Found

P13 (0301GrapherC)

a is parallel to b and c is perpendicular to both

P14 (0301:GrapherD)

No Solution File Found

P15 (0301TFA)

False. Steepness is measured by the absolute value of the slope/derivative.

P16 (0301TFB)

False. They do not have opposite-reciprocal slope.

P17 (0301TFC)

True.

P18 (0301TFD)

True.

Section 3.2 Lab (Zoomed Straight)

L1 (lab:L1)

No Solution File Found

L2 (lab:L2)

No Solution File Found

L3 ()

No Solution File Found

L4 (lab:L4)

No Solution File Found

L5 (lab:L5)

No Solution File Found

L6 (lab:L6)

No Solution File Found

L7 ()

No Solution File Found

L8 ()

No Solution File Found

L9 ()

No Solution File Found

Section 3.3 Lab (Another Definition of Parabolas)

L1 ()

No Solution File Found

L2 ()

No Solution File Found

L3 ()

No Solution File Found

L4 0

No Solution File Found

L5 0

No Solution File Found

L6 0

No Solution File Found

L7 0

No Solution File Found

L8 0

No Solution File Found

L9 0

No Solution File Found

L10 0

No Solution File Found

L11 0

No Solution File Found

Transformations

Powers

Polynomials

Logarithms

Section 7.1 Lab (3-in-1)

L1 0

No Solution File Found

L2 0

No Solution File Found

L3 0

No Solution File Found

L4 0

No Solution File Found

L5 0

No Solution File Found

L6 0

No Solution File Found

L7 0

No Solution File Found

L8 0

No Solution File Found

Section 8.2 Exercises

P1 (0802Hotel)

a. have each of the existing guests move to their room number plus n

b. many solutions. ex. have each existing guest move to 2 times his or her room number. The new guests can fill in the odds

c. many solutions. ex. having numbered each bus with a prime number starting with 3 (call it P_n), and having numbered each person the bus with a number (call it m), assign each new guest a room number P_n^m. Have all the existing guests move from their room (call it q) to 2^q.

d. many solution

P2 (0802BFF)

$1+x+x^2+x^3+x^4+x^5+\ldots$. Many answers, ex. by six terms it resembles the original from $-1/2$ to $1/2$. Even with vastly large numbers, it still only works from (-1,1).

P3 (0802Grandi)

No Solution File Found

P4 (0802Gabriel)

Infinite surface, finite area. The surface never stops, so the painting would never stop. But the area sums to a finite number.

P5 (0802Primes)

No Solution File Found

P6 (0802Power)

Make a table of booleans (T/F) for whether a number is included or not.

P7 (0802Aleph2)

Most functions and relations map the real numbers onto the real numbers. Like a power set, all possible combinations of the reals should yield a higher cardinality than the reals.

Radices

Section 16.1 Exercises

P1 (probP1)

No Solution File Found

P2 (probP2)

No Solution File Found

P3 (probP3)

No Solution File Found

Section A.1 Exercises

P1 (probP1)

No Solution File Found

P2 (probP2)

No Solution File Found

Section A.2 Exercises

P1 (probP1)

No Solution File Found

P2 (probP2)

No Solution File Found

P3 (probP3)

No Solution File Found

P4 (probP4)

No Solution File Found

P5 (probP5)

No Solution File Found

P6 (probP6)

No Solution File Found

Section A.3 Exercises

P1 (probP1)

No Solution File Found

P2 (probP2)

No Solution File Found

P3 (probP3)

No Solution File Found

P4 (probP4)

No Solution File Found

P5 (probP5)

No Solution File Found

P6 (probP6)

No Solution File Found

P7 (probP7)

No Solution File Found

P8 (probP8)

No Solution File Found

P9 (probP9)

No Solution File Found

P10 (probP10)

No Solution File Found

P11 (probP11)

No Solution File Found

Section A.4 Exercises

P1 (probP1)

No Solution File Found

P2 (probP2)

No Solution File Found

P3 (probP3)

No Solution File Found

P4 (probP4)

No Solution File Found

P5 (probP5)

No Solution File Found

P6 (probP6)

No Solution File Found

Section A.6 Exercises

P1 (probP1)

No Solution File Found

P2 (probP2)

No Solution File Found

Solutions