### Differential Equations with Boundary Value Problems 9th Edition Zill Test Bank

Full Download: https://alibabadownload.com/product/differential-equations-with-boundary-value-problems-9th-edition-zill-test-ba Section 2.1.1 - Direction Fields

1. If a > b and b > 0, the autonomous differential equation  $\frac{dP}{dt} = P(a - bP)_{\text{has a solution that is}}$ 

Select the correct answer.

- a. increasing everywhere
- b. decreasing everywhere
- c. increasing if  $0 \le P \le \frac{a}{b}$ d. decreasing if  $0 \le P \le \frac{a}{b}$ e. increasing if  $P \ge \frac{a}{b}$ ANSWER: c POINTS: 1 QUESTION TYPE: Multi-Mode (Multiple choice) HAS VARIABLES: False DATE CREATED: 2/2/2016 11:28 AM DATE MODIFIED: 12/19/2016 4:13 AM

2. The autonomous differential equation  $\frac{dx}{dt} = x(x-1)(x+1)_{\text{has a solution that is}}$ 

Select the correct answer.

- a. increasing everywhere
- b. decreasing everywhere
- c. increasing if  $0 \le x \le 1$
- d. decreasing if  $-1 \le x \le 0$
- e. increasing if x > 1

ANSWER:ePOINTS:1QUESTION TYPE:Multi-Mode (Multiple choice)HAS VARIABLES:FalseDATE CREATED:2/2/2016 11:28 AMDATE MODIFIED:12/19/2016 4:12 AM

3. Assume that a > 0, b > 0. The autonomous differential equation  $\frac{dP}{dt} = P(a + bP)_{\text{has a solution that is}}$ 

Select the correct answer.

- a. increasing everywhere
- b. decreasing everywhere

c. increasing if 
$$-\frac{a}{b} < P < 0$$
  
d. decreasing if  $-\frac{a}{b} < P < 0$ 

Copyright Cengage Learning. Powered by Cognero.

Page 1

### This sample only, Download all chapters at: AlibabaDownload.com

Section 2.1.1 - Direction Fields

e. decreasing if  $P < -\frac{a}{h}$ ANSWER: d POINTS: 1 QUESTION TYPE: Multi-Mode (Multiple choice) HAS VARIABLES: False DATE CREATED: 2/2/2016 11:28 AM DATE MODIFIED: 12/19/2016 4:12 AM 4. The autonomous differential equation  $\frac{dx}{dt} = x^2(x-4)$  has a solution that is Select the correct answer. a. increasing everywhere b. decreasing everywhere c. increasing if  $0 \le x \le 4$ d. decreasing if x > 4e. increasing if x > 4ANSWER: е 1 POINTS: QUESTION TYPE: Multi-Mode (Multiple choice) HAS VARIABLES: False DATE CREATED: 2/2/2016 11:28 AM DATE MODIFIED: 12/19/2016 4:13 AM

### Section 2.1.2 - Autonomous First-Order Des

1. In the autonomous differential equation  $\frac{dx}{dt} = x(1-x)$ , the critical point Select the correct answer.

a. x = 0 is an attractor b. x = 0 is semistable c. x = 1 is an attractor d. x = 1 is a repeller e. x = 1 is semistable ANSWER: c POINTS: 1 QUESTION TYPE: Multi-Mode (Multiple choice) HAS VARIABLES: False DATE CREATED: 2/2/2016 11:28 AM DATE MODIFIED: 12/19/2016 4:13 AM

2. The differential equation  $(x^2 + y^2)y' = xy_{is}$ Select the correct answer.

a. linear b. homogeneous c. separable d. exact e. Bernoulli ANSWER: b POINTS: 1 QUESTION TYPE: Multi-Mode (Multiple choice) HAS VARIABLES: False DATE CREATED: 2/2/2016 11:28 AM DATE MODIFIED: 12/19/2016 4:15 AM

3. In the autonomous differential equation  $\frac{dx}{dt} = x^2(1-x)$ , the critical point Select the correct answer.

a. x = 0 is an attractor b. x = 0 is a repeller c. x = 1 is an attractor d. x = 1 is a repeller e. x = 1 is semistable ANSWER: c POINTS: 1

### Section 2.1.2 - Autonomous First-Order Des

QUESTION TYPE:Multi-Mode (Multiple choice)HAS VARIABLES:FalseDATE CREATED:2/2/2016 11:28 AMDATE MODIFIED:12/19/2016 4:15 AM

4. The differential equation  $y' + y = xy^2_{is}$ Select the correct answer.



- b. homogeneous
- c. separable
- d. exact
- e. Bernoulli

ANSWER:

POINTS:

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: False

DATE CREATED: 2/2/2016 11:28 AM

е

1

DATE MODIFIED: 12/19/2016 4:15 AM

# Section 2.2 - Separable Equations

1. The differential equation 
$$y' = \frac{xe^y}{y}$$
 is

Select the correct answer.

- a. linear
- b. homogeneous
- c. separable
- d. exact
- e. Bernoulli

с
1
Multi-Mode (Multiple choice)
False
2/2/2016 11:28 AM
12/19/2016 4:16 AM

1. The differential equation  $y' = 2y + \sin x_{is}$ Select the correct answer.

a. linear b. homogeneous c. separable d. exact e. Bernoulli ANSWER: a POINTS: 1 QUESTION TYPE: Multi-Mode (Multiple choice) HAS VARIABLES: False DATE CREATED: 2/2/2016 11:28 AM DATE MODIFIED: 12/19/2016 4:16 AM

2. The solution of the differential equation  $y' = xy_{is}$ Select the correct answer.

a. 
$$y = ce^{x}$$
  
b.  $y = ce^{x^{2}}$   
c.  $y = c + e^{x}$   
d.  $y = ce^{\frac{x^{2}}{2}}$   
e.  $\frac{x^{2}}{y = c + e^{\frac{x^{2}}{2}}}$ 

ANSWER:dPOINTS:1QUESTION TYPE:Multi-Mode (Multiple choice)HAS VARIABLES:FalseDATE CREATED:2/2/2016 11:28 AMDATE MODIFIED:12/19/2016 4:16 AM

3. The solution of the differential equation  $y' - y = x_{is}$ Select the correct answer.

a. 
$$y = x - 1 + ce^{-x}$$
  
b.  $y = \frac{x^2}{2} + e^x$ 

c.  $y = \frac{x^2}{2} + e^{-x}$ d.  $y = x - 1 + ce^x$ e.  $y = -x - 1 + ce^x$ ANSWER: e POINTS: 1 QUESTION TYPE: Multi-Mode (Multiple choice) HAS VARIABLES: False DATE CREATED: 2/2/2016 11:28 AM DATE MODIFIED: 12/19/2016 4:17 AM

4. An integrating factor for the linear differential equation  $xy''+y=x_{is}$ Select the correct answer.

a. 0 b. 1 c. xd.  $\frac{1}{x}$ e.  $e^x$ ANSWER: b POINTS: 1 QUESTION TYPE: Multi-Mode (Multiple choice) HAS VARIABLES: False DATE CREATED: 2/2/2016 11:28 AM DATE MODIFIED: 12/19/2016 4:17 AM

5. An integrating factor for the linear differential equation  $y' - \frac{y}{x} = x_{is}$ Select the correct answer.

b.  $x^2$ c.  $\frac{1}{x}$ d.  $\frac{1}{x^2}$ e.  $e^{-x}$ ANSWER: c POINTS: 1 QUESTION TYPE: Multi-Mode (Multiple choice) HAS VARIABLES: False Copyright Cengage Learning. Powered by Cognero.

a. 🕱

DATE CREATED: 2/2/2016 11:28 AM DATE MODIFIED: 12/19/2016 4:17 AM

6. The solution of the differential equation  $y' - \frac{y}{x} = y^2_{is}$ Select the correct answer.

a.  $y = \frac{c}{x} - \frac{x}{2}$ b.  $y = \frac{1}{\frac{c}{x} - \frac{x}{2}}$ c.  $y = (cx - x \ln x)$ d.  $y = \frac{1}{cx - x \ln x}$ e.  $y = 1 + ce^{x}$ ANSWER: b POINTS: 1 QUESTION TYPE: Multi-Mode (Multiple choice) HAS VARIABLES: False DATE CREATED: 2/2/2016 11:28 AM DATE MODIFIED: 12/19/2016 4:17 AM

7. The differential equation  $x^2y' = 2xy + \cos x_{is}$ Select the correct answer.

a. linear

b. homogeneous

c. separable

d. exact

e. Bernoulli

ANSWER:aPOINTS:1QUESTION TYPE:Multi-Mode (Multiple choice)HAS VARIABLES:FalseDATE CREATED:2/2/2016 11:28 AMDATE MODIFIED:12/19/2016 4:17 AM

8. The solution of the differential equation  $y' = x^2 y_{is}$ Select the correct answer.

a. 
$$y = ce^{x^2}$$
  
b.  $y = ce^{x^3}$ 

c. 
$$y = c + e^{x^2}$$
  
d.  $\frac{x^3}{y = ce^{\frac{x^3}{3}}}$   
e.  $\frac{x^3}{y = c + e^{\frac{x^3}{3}}}$ 

ANSWER:dPOINTS:1QUESTION TYPE:Multi-Mode (Multiple choice)HAS VARIABLES:FalseDATE CREATED:2/2/2016 11:28 AMDATE MODIFIED:12/19/2016 4:17 AM

9. The solution of the differential equation  $y' + y = x_{is}$ Select the correct answer.

a. 
$$y = x - 1 + ce^{-x}$$
  
b.  $y = \frac{x^2}{2} + e^x$   
c.  $y = \frac{x^2}{2} + e^{-x}$   
d.  $y = x - 1 + ce^x$   
e.  $y = -x - 1 + ce^x$   
ANSWER: a  
POINTS: 1  
QUESTION TYPE: Multi-Mode (Multiple choice)  
HAS VARIABLES: False  
DATE CREATED: 2/2/2016 11:28 AM  
DATE MODIFIED: 12/19/2016 4:18 AM

### Section 2.4 - Exact Equations

1. The differential equation  $2xydx + (x^2 + 1)dy = 0_{is}$ Select the correct answer.

a. exact with solution  $x^2y + y + c$ b. exact with solution  $x^2y + y + c$ c. exact with solution 2xy + y + cd. exact with solution 2xy + y + ce. not exact ANSWER: b POINTS: 1 QUESTION TYPE: Multi-Mode (Multiple choice) HAS VARIABLES: False DATE CREATED: 2/2/2016 11:28 AM DATE MODIFIED: 12/19/2016 4:19 AM

2. The differential equation  $xydx + (x^2 + y^2)dy = 0_{is}$ Select the correct answer.

a.  
exact with solution 
$$\frac{x^2y}{2} + \frac{y^3}{3} = c$$
  
b.  
exact with solution  $\frac{x^2y}{2} + \frac{y^2}{2} = c$   
c.  
exact with solution  $\frac{x^2y}{2} + \frac{y^3}{3} + c$ 

d. not exact but having an integrating factor x

e. not exact but having an integrating factor y

ANSWER:ePOINTS:1QUESTION TYPE:Multi-Mode (Multiple choice)HAS VARIABLES:FalseDATE CREATED:2/2/2016 11:28 AMDATE MODIFIED:12/19/2016 4:19 AM

3. The solution of  $(x+2y)dx+ydy = 0_{is}$ Select the correct answer.

a. 
$$\ln x + \ln(y+x) = c$$
  
b.  $\ln \left(\frac{y+x}{x}\right) = c$ 

Section 2.4 - Exact Equations

<sup>c.</sup> 
$$\ln (y+x) + \frac{x}{y+x} = c$$
  
<sup>d.</sup> 
$$\ln(y+x) + \frac{x}{y+x} + c$$

e. it cannot be solved ANSWER: c POINTS: 1 QUESTION TYPE: Multi-Mode (Multiple choice) HAS VARIABLES: False DATE CREATED: 2/2/2016 11:28 AM DATE MODIFIED: 12/19/2016 4:19 AM

4. The differential equation  $2xydx + (x^2 + y^3)dy = 0_{is}$ Select the correct answer.

a. linear

b. homogeneous

c. separable

d. exact

e. Bernoulli

ANSWER:	d
POINTS:	1
QUESTION TYPE:	Multi-Mode (Multiple choice)
HAS VARIABLES:	False
DATE CREATED:	2/2/2016 11:28 AM
DATE MODIFIED:	12/19/2016 4:20 AM

5. The differential equation  $(y^3 + 6xy^4)dx + (3xy^2 + 12x^2y^3)dy = 0_{is}$ Select the correct answer.

a. exact with solution  $\frac{y^4}{4} + \frac{6xy^5}{5} + \frac{3x^2y^2}{2} + 4x^3y^3 + c$ b. exact with solution  $\frac{y^4}{4} + \frac{6xy^5}{5} + \frac{3x^2y^2}{2} + 4x^3y^3 = c$ c. exact with solution  $xy^3 + 3x^2y^4 = c$ d. exact with solution  $xy^3 + 3x^2y^4 + c$ e. not exact ANSWER: C. POINTS: 1 QUESTION TYPE: Multi-Mode (Multiple choice)

### Section 2.4 - Exact Equations

HAS VARIABLES: False DATE CREATED: 2/2/2016 11:28 AM DATE MODIFIED: 12/19/2016 4:20 AM

6. The differential equation  $(-xy\sin x + 2y\cos x)dx + 2x\cos x dy = 0$  is Select the correct answer.

a. exact with solution -xycos x + ysin x + 2xycos x = c
b. exact with solution -xycos x + ysin x + 2xycos x + c
c. exact with solution -2xycos x + ysin x + 2xycos x = c
d. not exact but having an integrating factor xy
e. not exact but having an integrating factor y

ANSWER: d
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: False
DATE CREATED: 2/2/2016 11:28 AM
DATE MODIFIED: 12/19/2016 4:20 AM

7. The solution of  $(x-2y)dx + ydy = 0_{is}$ Select the correct answer.

a. 
$$\ln(y-x) - \frac{x}{y-x} = c$$
  
b. 
$$\ln(y-x) - \frac{x}{y-x} + c$$
  
c. 
$$\ln x + \ln(y-x) = c$$
  
d. 
$$\ln \frac{y+x}{x} = c$$

e. it cannot be solved

ANSWER:aPOINTS:1QUESTION TYPE:Multi-Mode (Multiple choice)HAS VARIABLES:FalseDATE CREATED:2/2/2016 11:28 AMDATE MODIFIED:12/19/2016 4:20 AM

1. The differential equation (x+2y)dx + ydy = 0 can be solved using the substitution Select the correct answer.

a. u = x + 2yb. u = yc. u = xyd.  $u = \frac{y}{x}$ 

e. it cannot be solved using a substitution

ANSWER:dPOINTS:1QUESTION TYPE:Multi-Mode (Multiple choice)HAS VARIABLES:FalseDATE CREATED:2/2/2016 11:28 AMDATE MODIFIED:12/19/2016 4:21 AM

2. The differential equation  $y' - \frac{y}{x} = y^2$  can be solved using the substitution Select the correct answer.

a. u = yb.  $u = y^2$ c.  $u = y^3$ d.  $u = y^{-1}$ e.  $u = y^{-2}$ ANSWER: d POINTS: 1 QUESTION TYPE: Multi-Mode (Multiple choice) HAS VARIABLES: False DATE CREATED: 2/2/2016 11:28 AM DATE MODIFIED: 12/19/2016 4:21 AM

3. The differential equation  $y' = (4x + 2y + 3)^2$  has the solution Select the correct answer.

a. 
$$y = -\frac{(4x+3)^3}{12} + c$$
  
b.  $y = -\frac{(4x+2y+3)^3}{12} + c$   
c.  $y = -\frac{(4x+2y+3)^3}{3} + c$ 

d. 
$$y = \sqrt{2} \tan(2\sqrt{2}x + c)$$
  
e.  $4x + 2y + 3 = \sqrt{2} \tan(2\sqrt{2}x + c)$ 

ANSWER:ePOINTS:1QUESTION TYPE:Multi-Mode (Multiple choice)HAS VARIABLES:FalseDATE CREATED:2/2/2016 11:28 AMDATE MODIFIED:12/19/2016 4:21 AM

4. The differential equation  $y' = \sqrt{x+y+1} - 1_{\text{has the solution}}$ Select the correct answer.



ANSWER:cPOINTS:1QUESTION TYPE:Multi-Mode (Multiple choice)HAS VARIABLES:FalseDATE CREATED:2/2/2016 11:28 AMDATE MODIFIED:12/19/2016 4:21 AM

5. An integrating factor for the linear differential equation  $y' + \frac{y}{x} = x_{is}$ Select the correct answer.

a.  $\frac{1}{x}$ b. x

c. <u>1</u>	
x <sup>2</sup>	
d. 🗶	
e. 🥙	
ANSWER:	b
POINTS:	1
QUESTION TYPE:	Multi-Mode (Multiple choice)
HAS VARIABLES:	False
DATE CREATED:	2/2/2016 11:28 AM
DATE MODIFIED:	12/19/2016 4:21 AM

6. An integrating factor for the linear differential equation  $x^2y' + xy = 1_{is}$ Select the correct answer.

a. 0	
b. 1	
c. <i>x</i>	
d. <u>1</u>	
x	
e. 🧉	
ANSWER:	d
POINTS:	1
QUESTION TYPE:	Multi-Mode (Multiple choice)
HAS VARIABLES:	False
DATE CREATED:	2/2/2016 11:28 AM
DATE MODIFIED:	12/19/2016 4:22 AM

7. The differential equation (x-2y)dx + ydy = 0 can be solved using the substitution Select the correct answer.

a. u = xyb.  $u = \frac{y}{x}$ c. u = x - 2yd. u = y

e. it cannot be solved using a substitution

ANSWER:bPOINTS:1QUESTION TYPE:Multi-Mode (Multiple choice)HAS VARIABLES:FalseDATE CREATED:2/2/2016 11:28 AMDATE MODIFIED:12/19/2016 4:56 AM

8. The differential equation  $y' + \frac{y}{x} = y^2$  can be solved using the substitution Select the correct answer.

a. u = yb.  $u = y^2$ c.  $u = y^3$ d.  $u = y^{-1}$ e.  $u = y^{-2}$ ANSWER: d POINTS: 1 QUESTION TYPE: Multi-Mode (Multiple choice) HAS VARIABLES: False DATE CREATED: 2/2/2016 11:28 AM DATE MODIFIED: 12/19/2016 4:56 AM

9. The solution of the differential equation  $y' + \frac{y}{x} = y^2_{is}$ Select the correct answer.

a.  $y = \frac{c}{x} - \frac{x}{2}$ b.  $y = \frac{1}{\frac{c}{x} - \frac{x}{2}}$ c.  $y = cx - x \ln x$ d.  $y = \frac{1}{cx - x \ln x}$ e.  $y = 1 + ce^x$ ANSWER: d POINTS: 1 QUESTION TYPE: Multi-Mode (Multiple choice) HAS VARIABLES: False DATE CREATED: 2/2/2016 11:28 AM DATE MODIFIED: 12/19/2016 4:56 AM

10. The differential equation  $y' = (2x + 4y + 5)^2$  has the solution Select the correct answer.

<sup>a.</sup> 
$$y = -\frac{(2x+3)^3}{6} + c$$

b. 
$$y = \frac{(2x+4y+5)^3}{6} + c$$
  
c.  $y = \frac{(2x+4y+5)^3}{3} + c$   
d.  $y = \frac{\tan(2\sqrt{2x}+c)}{\sqrt{2}}$   
e.  $2x+4y+5 = \frac{\tan(2\sqrt{2x}+c)}{\sqrt{2}}$ 

ANSWER:ePOINTS:1QUESTION TYPE:Multi-Mode (Multiple choice)HAS VARIABLES:FalseDATE CREATED:2/2/2016 11:28 AMDATE MODIFIED:12/19/2016 4:57 AM

11. The differential equation  $y' = \sqrt{2x - y + 1} + 2_{\text{has the solution}}$ Select the correct answer.

a. 
$$y = \left(\frac{-x+c}{2}\right)^{2}$$
  
b. 
$$2x-y+1 = y = \left(\frac{-x+c}{2}\right)^{3}$$
  
c. 
$$y = \frac{2(2x-y+1)^{\frac{3}{2}}}{3} + c$$
  
d. 
$$y = \frac{2(2x-y+1)^{\frac{3}{2}}}{3} - x + c$$
  
e. 
$$2x+y = \left(\frac{-x+c}{2}\right)^{2}$$
  
ANSWER: b  
POINTS: 1  
QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: False DATE CREATED: 2/2/2016 11:28 AM

DATE MODIFIED: 12/19/2016 4:57 AM

### Section 2.6 - A Numerical Method

1. Solve the problem y' = (x + 1)y, y(0) = 1 numerically for y(0.2) using h = 0.1. Select the correct answer.

 a. 1.1

 b. 1.11

 c. 1.2

 d. 1.21

 e. 1.221

 ANSWER:
 e

 POINTS:
 1

 QUESTION TYPE:
 Multi-Mode (Multiple choice)

 HAS VARIABLES:
 False

 DATE CREATED:
 2/2/2016 11:28 AM

 DATE MODIFIED:
 12/19/2016 4:58 AM

2. Solve the problem  $y' = x^2y^2$ ,  $y(0) = 1_{\text{numerically for }} y(0.2)_{\text{using }} h = 0.1$ Select the correct answer.

a. 1.0 b. 1.001 c. 1.01 d. 1.02 e. 1.002 ANSWER: b POINTS: 1 QUESTION TYPE: Multi-Mode (Multiple choice) HAS VARIABLES: False DATE CREATED: 2/2/2016 11:28 AM DATE MODIFIED: 12/19/2016 4:58 AM

3. Solve the problem y' = xy, y(1) = 2 numerically for y(1.2) using h = 0.1. Select the correct answer.

a. 2.1 b. 2.442 c. 2.242 d. 2.421 e. 2.4 ANSWER: b POINTS: 1 QUESTION TYPE: Multi-Mode (Multiple choice) HAS VARIABLES: False DATE CREATED: 2/2/2016 11:28 AM

### Differential Equations with Boundary Value Problems 9th Edition Zill Test Bank

 $Full \ Download: \ https://alibabadownload.com/product/differential-equations-with-boundary-value-problems-9 th-edition-zill-test-based on the second seco$ 

Section 2.6 - A Numerical Method

DATE MODIFIED: 12/19/2016 4:58 AM

4. Solve the problem  $y' = xy^2$ ,  $y(1) = 1_{\text{numerically for }} y(1.2)_{\text{using }} h = 0.1$ . Select the correct answer.

a. 1.1 b. 1.121 c. 1.2331 d. 1.23 e. 1.221 ANSWER: c POINTS: 1 QUESTION TYPE: Multi-Mode (Multiple choice) HAS VARIABLES: False DATE CREATED: 2/2/2016 11:28 AM DATE MODIFIED: 12/19/2016 4:58 AM