Calculus Early Transcendental Functions 5th Edition Larson Test Bank

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Lar_Calc_ETF_5e ch01sec02

MULTIPLE CHOICE

1. Estimate the slope of the line from the graph.





ANS: BPTS: 1DIF: EasyREF: 1.2.2OBJ: Estimate the slope of a line from its graphMSC: SkillNOT: Section 1.2

2. Sketch the line passing through the point (3, 4) with the slope $-\frac{3}{2}$.





ANS:DPTS:1DIF:EasyREF:1.2.7cOBJ:Sketch the line passing through a point with specified slopeMSC:SkillNOT:Section 1.2

3. Find the slope of the line passing through the pair of points.

(-3, -6), (0, -11)a. $\frac{3}{5}$ b. $-\frac{5}{3}$ c. $\frac{5}{3}$ d. 0 e. $-\frac{3}{5}$

ANS:BPTS:1DIF:EasyREF:1.2.9OBJ:Calculate the slope of a line passing through two pointsMSC:SkillNOT:Section 1.2

4. Find the slope of the line passing through the points $\left(-\frac{1}{8}, \frac{8}{3}\right)$ and $\left(-\frac{3}{16}, \frac{1}{24}\right)$.

- a. 63 b. −21 c. 42
- d. 21 e. -42

ANS:CPTS:1DIF:MediumREF:1.2.13OBJ:Calculate the slope of a line passing through two pointsMSC:SkillNOT:Section 1.2

- 5. If a line has slope m = -4 and passes through the point (4, 8), through which of the following points does the line also pass?
 - a. (1, 20) b. (1, 12) c. (1, 0) d. (8, -16)
 - e. (8, -24)

ANS: APTS: 1DIF: MediumREF: 1.2.17OBJ: Identify a point on a line with specified propertiesMSC: SkillNOT: Section 1.2

6. A moving conveyor is built to rise 5 meters for every 7 meters of horizontal change. Find the slope of the conveyor.

a.	0		
b.	5		
	7		
c.	7		
	3		
d.	7		
	-5		
e.	5		
	-7		
4 N	(C. D. DTC. 1	DIE: Eagu	$\mathbf{DEE}_{1} = 1 \ 2 \ 10_{0}$
AN		DIF. Easy	KEF. 1.2.19a
OB	J: Calculate slopes in applications	MSC: Application	NOT: Section 1.2

7. A moving conveyor is built to rise 1 meter for every 5 meters of horizontal change. Suppose the conveyor runs between two floors in a factory. Find the length of the conveyor if the vertical distance between floors is 10 meters. Round your answer to the nearest meter.

a.	61 meters						
b.	39 meters						
c.	51 meters						
d.	50 meters						
e.	41 meters						
AN	IS: C	PTS:	1	DIF:	Medium	REF:	1.2.19b

8. Find the slope of the line x + 3y = 15.

a. $\frac{1}{3}$ b. $-\frac{1}{5}$ c. $\frac{1}{5}$ d. $-\frac{1}{15}$ e. $-\frac{1}{3}$

ANS: EPTS: 1DIF: MediumREF: 1.2.25OBJ: Manipulate a linear equation to determine its slopeMSC: SkillNOT: Section 1.2

- 9. Find the *y*-intercept of the line x + 4y = 8.
 - a. (0, 2)
 - b. (0, 4)
 - c. (0, 8)
 - d. (4, 0)
 - e. (2, 0)

ANS: APTS: 1DIF: MediumREF: 1.2.26OBJ:Manipulate a linear equation to determine its y-interceptMSC: SkillNOT:Section 1.2

10. Find an equation of the line that passes through the point (7, 2) and has the slope *m* that is undefined.

a. y = 7b. x = 7c. y = 2d. x = 2e. y = 7xANS: B PTS: 1 DIF: Easy REF: 1.2.30 OBJ: Write an equation of a line given a point on the line and its slope MSC: Skill NOT: Section 1.2

11. Find an equation of the line that passes through the point (-11, -9) and has the slope $m = \frac{9}{2}$.

a. $y = \frac{9}{2}x - \frac{81}{2}$ b. $y = \frac{9}{2}x + \frac{81}{2}$ c. $y = \frac{9}{2}x + 162$

d.
$$y = \frac{9}{2}x$$

e.
$$y = -\frac{9}{2}x$$

ANS: BPTS: 1DIF: EasyREF: 1.2.34OBJ:Write an equation of a line given a point on the line and its slopeMSC:SkillNOT: Section 1.2

12. Find an equation of the line that passes through the points (18, -7) and (-18, 23).

a.
$$y = -\frac{5}{6}x - 8$$

b. $y = \frac{5}{6}x - 8$
c. $y = \frac{5}{6}x + 8$
d. $y = -\frac{5}{6}x + 8$
e. $y = -\frac{5}{6}x$

ANS: DPTS: 1DIF: EasyREF: 1.2.40OBJ: Write an equation of a line given two points on the lineMSC: SkillNOT: Section 1.2

13. Find an equation of the line that passes through the points $\left(-\frac{8}{11}, -\frac{70}{11}\right)$ and $\left(\frac{3}{2}, -\frac{21}{4}\right)$.

a. $y = \frac{1}{2}x$ b. $y = \frac{1}{2}x + 6$ c. $y = \frac{1}{2}x + 12$ d. $y = \frac{1}{2}x - 12$ e. $y = \frac{1}{2}x - 6$

ANS: EPTS: 1DIF: MediumREF: 1.2.44OBJ: Write an equation of a line given two points on the lineMSC: SkillNOT: Section 1.2

- 14. Use the result, "the line with intercepts (a, 0) and (0, b) has the equation $\frac{x}{a} + \frac{y}{b} = 1$, $a \neq 0$, $b \neq 0$ ", to write an equation of the line with *x*-intercept: (8, 0) and *y*-intercept: (0, 7).
 - a. 8x 7y 8 = 0b. 7x - 8y + 7 = 0c. 8x + 7y + 8 = 0d. 7x + 8y + 56 = 0

e. 7x + 8y - 56 = 0

ANS:EPTS:1DIF:EasyREF:1.2.47OBJ:Write an equation of a line given its x- and y-interceptsMSC:SkillNOT:Section 1.2





ANS: BPTS: 1DIF: MediumREF: 1.2.56OBJ: Sketch the graph of a linear equationMSC: Skill

NOT: Section 1.2

16. Write an equation of the line that passes through the given point and is perpendicular to the given line.

Point Line (-1, -7) x = 6a. y = 7b. y = -7c. y = -1d. x = -1e. x = 1ANS: C PTS: 1 DIF: Medium OBJ: Write an equation of a line given a point on the line and a line to which it is parallel/perpendicular MSC: Skill

17. Write an equation of the line that passes through the given point and is parallel to the given line.

REF: 1.2.61b

NOT: Section 1.2

Point Line

$$(3, -4)$$
 $-2x - 5y = 9$
a. $-2x - 5y = 14$
b. $-2x - 5y = 23$
c. $2x - 5y = 14$
d. $-2x + 5y = -26$
e. $2x - 5y = 23$

ANS: A PTS: 1 DIF: Medium REF: 1.2.63a OBJ: Write an equation of a line given a point on the line and a line to which it is MSC: Skill NOT: Section 1.2 parallel/perpendicular

- 18. Write an equation of the line that passes through the point (-6, 4) and is perpendicular to the line x + y = 5.
 - a. x y + 10 = 0b. x - y + 2 = 0c. x + y - 2 = 0d. x + y + 10 = 0e. x + y - 5 = 0ANS: A PTS: 1 DIF: Medium REF: 1.2.64b OBJ: Write an equation of a line given a point on the line and a line to which it is perpendicular MSC: Skill NOT: Section 1.2

19. Write an equation of the line that passes through the point $\left(\frac{5}{4}, \frac{5}{8}\right)$ and is parallel to the line 7x - 3y = 0.

a. 56x - 24y - 55 = 0b. 56x + 12y - 55 = 0

c. 56x - 8y + 55 = 0d. 56x + 6y + 55 = 0e. 56x + 4y - 55 = 0

ANS: APTS: 1DIF: EasyREF: 1.2.65aOBJ: Write an equation of a line given a point on the line and a line to which it is parallelMSC: SkillNOT: Section 1.2

20. Suppose that the dollar value of a product in 2008 is \$174 and the rate at which the value of the product is expected to increase per year during the next 5 years is \$7.50. Write a linear equation that gives the dollar value V of the product in terms of the year t. (Let t = 0 represent 2000.) Round the numerical values in your answer to one decimal place, where applicable.

a. V = 7.5t - 159b. V = -7.5t - 114c. V = -7.5t + 174d. V = 7.5t + 174e. V = 7.5t - 144ANS: D PTS: 1 DIF: Easy REF: 1.2.68 OBJ: Write linear equations in applications MSC: Application NOT: Section 1.2

21. Find an equation of the line through the points of intersection of $y = x^2$ and $y = 6x - x^2$.

a. y = x - 6b. y = 6xc. y = -6xd. y = 3xe. y = x + 3

ANS: DPTS: 1DIF: MediumREF: 1.2.71OBJ: Write an equation of a line through the points of intersection of quadratic equationsMSC: SkillNOT: Section 1.2

- 22. A company reimburses its sales representatives 175 per day for lodging and meals plus 45ϕ per mile driven. Write a linear equation giving the daily cost *C* to the company in terms of *x*, the number of miles driven. Round the numerical values in your answer to two decimal places, where applicable.
 - a. C = -1.75x + 45b. C = 0.45x + 175c. C = -0.45x - 175d. C = 0.45x - 175e. C = 1.75x - 45ANS: B PTS: 1 DIF: Easy REF: 1.2.80a OBJ: Write linear equations in applications MSC: Application NOT: Section 1.2
- 23. A company reimburses its sales representatives \$160 per day for lodging and meals plus 42¢ per mile driven. How much does it cost the company if a sales representative drives 135 miles on a given day? Round your answer to the nearest cent.

a. 227.20

b.	21	6.70						
c.	13	6.35						
d.	16	1.35						
e.	19	1.70						
AN	S:	В	PTS:	1	DIF:	Easy	REF:	1.2.80b
OB	J:	Evaluate linea	r equati	ons in applicat	ions		MSC:	Application
NO	T:	Section 1.2	-					

24. A real estate office handles an apartment complex with 50 units. When the rent is \$800 per month, all 50 units are occupied. However, when the rent is \$845, the average number of occupied units drops to 47. Assume that the relationship between the monthly rent p and the demand x is linear. Write a linear equation giving the demand x in terms of the rent p.

a.
$$x = \frac{1}{15} (1595 - p)$$

b. $x = \frac{1}{15} (1505 + p)$
c. $x = \frac{1}{45} (1550 + p)$
d. $x = \frac{1}{15} (1550 - p)$
e. $x = \frac{1}{45} (1595 - p)$

ANS: DPTS: 1DIF: MediumREF: 1.2.83aOBJ: Write linear equations in applicationsMSC: ApplicationNOT: Section 1.2

- 25. A real estate office handles an apartment complex with 50 units. When the rent is \$600 per month, all 50 units are occupied. However, when the rent is \$645, the average number of occupied units drops to 47. Assume that the relationship between the monthly rent p and the demand x is linear. Predict the number of units occupied if the rent is raised to \$660.
 - a. 43 units
 - b. 54 units
 - c. 57 units
 - d. 49 units
 - e. 46 units

ANS:	E	PTS:	1	DIF:	Easy	REF:	1.2.83c
OBJ:	Evaluate linear	r equati	ons in applicat	ions		MSC:	Application
NOT:	Section 1.2						

26. Find the distance between the point (-4, 7) and line x - y - 2 = 0 using the formula,

Distance = $\frac{|Ax_1 + By_1 + C|}{\sqrt{A^2 + B^2}}$ for the distance between the point (x_1, y_1) and the line Ax + By + C = 0.

a.
$$\frac{11\sqrt{2}}{2}$$

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b.	$\frac{4\sqrt{3}}{3}$
c.	13√2
d.	2 9√2
e.	$\frac{1}{6\sqrt{3}}$

ANS:	C PTS:	1	DIF:	Medium	REF:	1.2.89
OBJ:	Calculate the distance	between a poin	nt and a	ı line	MSC:	Skill
NOT:	Section 1.2	-				