

BLM Answers

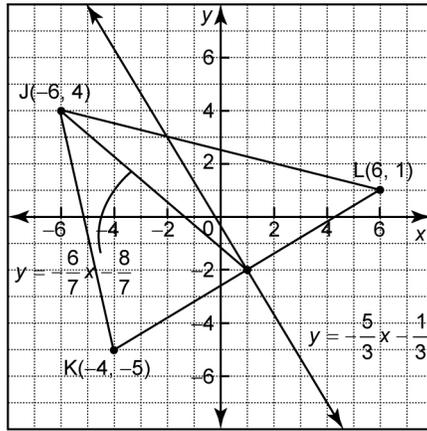
Get Ready

- a) $x = 2$ b) $y = 6$
 c) $z = -40$ d) $d = 25$
- a) $y = x + 3$ b) $y = -5x + 7$
 c) $y = -\frac{1}{2}x + \frac{4}{3}$ d) $y = \frac{1}{15}x + \frac{2}{5}$
- a) 2 b) -1
 c) -8 d) $-\frac{5}{3}$
- a) $y = 5x - 17$ b) $y = \frac{1}{3}x + \frac{17}{3}$
 c) $y = -4x + 7$ d) $y = -\frac{1}{4}x - 3$
- a) $y = 2x + 1$ b) $y = -x + 2$
 c) $y = -3x - 13$ d) $y = 3x - 1$
- a) $m = 5$ b) $m = \frac{1}{4}$
 c) $m = -\frac{1}{3}$ d) $m = \frac{5}{2}$
- a) $y = 2x - 3$ b) $y = \frac{3}{2}x + 6$
 c) $y = \frac{1}{3}x - \frac{16}{3}$ d) $y = \frac{4}{3}x - \frac{4}{3}$
- a) 60° b) 5 cm

Section 2.1 Practice Master

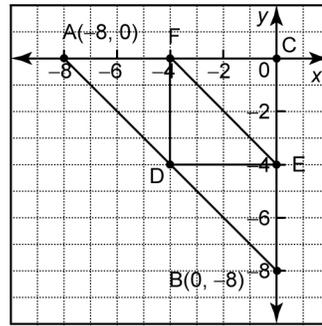
- a) $(\frac{1}{2}, 2)$ b) (1, 1) c) (-1, -1)
- a) (4, 4) b) $(\frac{1}{2}, -\frac{1}{2})$
 c) (1.2, 0.9) d) $(\frac{1}{5}, 0)$
- a) $m = -\frac{6}{5}$ b) $m = \frac{9}{11}$
- (-1, 2)
- a) $y = -\frac{3}{7}x + \frac{26}{7}$ b) $y = \frac{6}{5}x + 1$
 c) $y = -\frac{9}{2}x + \frac{21}{2}$
- (5, -2)
- $y = \frac{5}{7}x - \frac{24}{7}$

8. a), b), c)



9. (3a, 4b); Use the midpoint formula with $x_1 = 2a$, $x_2 = 4a$, $y_1 = 3b$, and $y_2 = 5b$.

10. a), b), c)



- From the graph, DE is 4 units long and AC is 8 units long, so DE is one half the length of AC.
- From the graph, DF is 4 units long and BC is 8 units long, so DF is one half the length of BC.
- By the Pythagorean theorem,

$$\begin{aligned}
 EF^2 &= DF^2 + DE^2 & AB^2 &= AC^2 + BC^2 \\
 &= 4^2 + 4^2 & &= 8^2 + 8^2 \\
 &= 32 & &= 128 \\
 EF &= \sqrt{32} & AB &= \sqrt{128} \\
 &= \sqrt{16 \times 2} & &= \sqrt{64 \times 2} \\
 &= \sqrt{16} \times \sqrt{2} & &= \sqrt{64} \times \sqrt{2} \\
 &= 4\sqrt{2} & &= 8\sqrt{2}
 \end{aligned}$$

Line segment AB is twice the length of line segment EF.

Section 2.2 Practice Master

1. Estimates may vary. Exact answers:

- a) $\sqrt{29}$ b) $\sqrt{58}$
 2. a) $\sqrt{128}$ b) $\sqrt{130}$
 c) $\sqrt{207.85}$ d) $\sqrt{2}$
 3. a) $\sqrt{392}$ b) $\sqrt{98}$
 4. a) $\sqrt{72}$ b) $\sqrt{45}$ c) 9
 5. a) $XY = \sqrt{160}$, $XZ = \sqrt{104}$, $YZ = \sqrt{136}$
 b) scalene c) 34.5
 6. a) $DE = 5$, $EF = 5$, $DF = 6$; $DE = EF$,
 so $\triangle DEF$ is isosceles.

b) Answers may vary. For example: $A(-5, 0)$, $B(0, 10)$, $C(5, 0)$

7. a) $\sqrt{58}$
 b) Construct $\triangle ABC$ by plotting the vertices and connecting them with line segments. Construct the midpoint, D, of side BC. Construct line segment AD. Select line segment AD and measure its length.

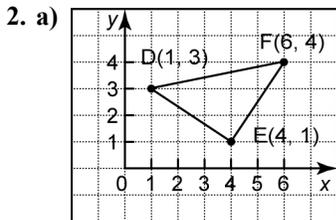
8. a) 15 square units
 b) Construct $\triangle DEF$ by plotting the vertices and connecting them with line segments. Select the vertices and then construct the triangle interior. Select the triangle interior and measure its area.

9. a) $M(3, 1)$
 b) $SM = \sqrt{85}$, $MT = \sqrt{85}$
 $ST = \sqrt{340}$
 $= \sqrt{4 \times 85}$
 $= \sqrt{4} \times \sqrt{85}$
 $= 2\sqrt{85}$
 $= 2 \times SM$
 $= 2 \times MT$

So, $ST = 2 \times SM = 2 \times MT$. M is the midpoint of ST.

Section 2.3 Practice Master

1. $y = -2x - 1$



b) slope $DE = -\frac{2}{3}$; slope $EF = \frac{3}{2}$; since the slopes are negative reciprocals, DE is perpendicular to EF, and $\angle DEF$ is a right angle.

3. $\sqrt{65}$

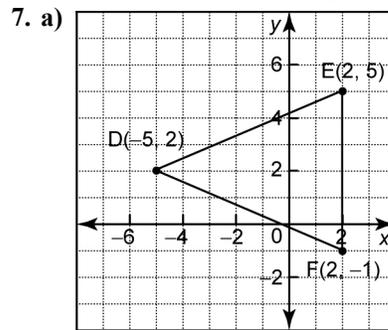
4. a) PQRS is a rhombus, because all four sides are equal in length.
 b) 24.3 units

5. a) $\sqrt{13}$ b) $E(-1, 1)$

6. a) $D(-1, 5)$, $E(-3, 1)$
 b) slope $DE = 2$; slope $BC = 2$; since the slopes are equal, the line segments are parallel.

c) $DE = \sqrt{20}$
 $BC = \sqrt{80}$
 $= \sqrt{4 \times 20}$
 $= \sqrt{4} \times \sqrt{20}$
 $= 2\sqrt{20}$

Thus, DE is half the length of BC.



b) $\triangle DEF$ is isosceles.

8. a) $\sqrt{39.2}$ b) $\sqrt{13}$ c) $\sqrt{62.5}$

9. a) $Z(6, 1)$ b) $XZ = \sqrt{145}$, $WY = \sqrt{65}$

c) The midpoint of XZ and the midpoint of WY both occur at (0, 1.5). Thus, XZ and WY bisect each other.

10. a) $\sqrt{72}$ b) $y = -x - 2$

Section 2.4 Practice Master

1. a) $x^2 + y^2 = 36$ b) $x^2 + y^2 = 7$

2. Points may vary. Examples are given.

- a) 7; (0, 7) b) 4; (4, 0)
 c) 8; (-8, 0) d) 1.2; (0, -1.2)

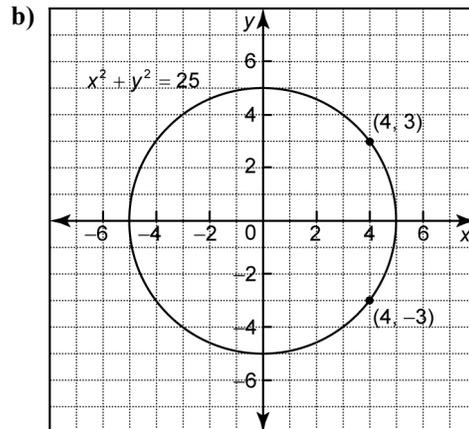
3. a) $x^2 + y^2 = 25$ b) $x^2 + y^2 = 29$

c) $x^2 + y^2 = 58$ d) $x^2 + y^2 = 40$

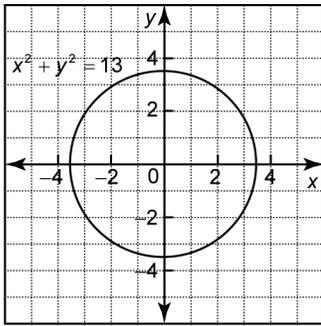
4. a) inside b) outside c) on

5. $x^2 + y^2 = 65$

6. a) 3, -3



7. a)



b) M(-3, 2):

$$\begin{aligned} \text{L.S.} &= x^2 + y^2 & \text{R.S.} &= 13 \\ &= (-3)^2 + 2^2 \\ &= 9 + 4 \\ &= 13 \end{aligned}$$

$$\text{L.S.} = \text{R.S.}$$

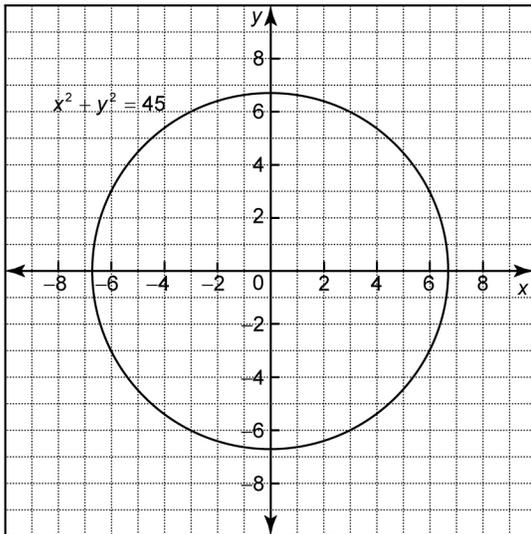
N(2, -3):

$$\begin{aligned} \text{L.S.} &= x^2 + y^2 & \text{R.S.} &= 13 \\ &= 2^2 + (-3)^2 \\ &= 4 + 9 \\ &= 13 \end{aligned}$$

$$\text{L.S.} = \text{R.S.}$$

c) $y = x$

8. a)



b) Check that both endpoints are on the circle.

P(-3, 6):

$$\begin{aligned} \text{L.S.} &= x^2 + y^2 & \text{R.S.} &= 45 \\ &= (-3)^2 + 6^2 \\ &= 9 + 36 \\ &= 45 \end{aligned}$$

$$\text{L.S.} = \text{R.S.}$$

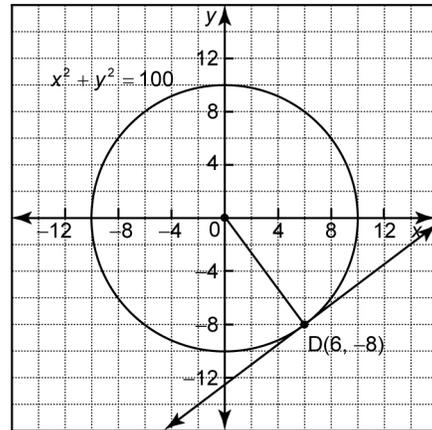
Q(6, -3):

$$\begin{aligned} \text{L.S.} &= x^2 + y^2 & \text{R.S.} &= 45 \\ &= 6^2 + (-3)^2 \\ &= 36 + 9 \\ &= 45 \end{aligned}$$

$$\text{L.S.} = \text{R.S.}$$

c) $y = x$

9. a), c), d)



b) D(6, -8)

$$\begin{aligned} \text{L.S.} &= x^2 + y^2 & \text{R.S.} &= 100 \\ &= 6^2 + (-8)^2 \\ &= 36 + 64 \\ &= 100 \end{aligned}$$

$$\text{L.S.} = \text{R.S.}$$

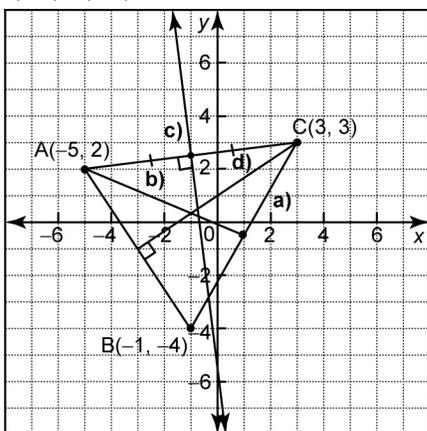
c) $-\frac{4}{3}$ d) $\frac{3}{4}$ e) $y = \frac{3}{4}x - \frac{25}{2}$

Chapter 2 Review

1. a) $(1, \frac{1}{2})$ b) $(\frac{1}{2}, -\frac{1}{2})$

2. a) $(-4, 4)$ b) $(-\frac{3}{2}, -\frac{5}{2})$

3. a), b), c), d)

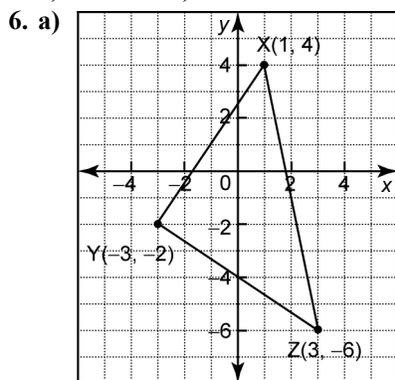


b) $y = -\frac{5}{12}x - \frac{1}{12}$ c) $y = -8x - \frac{11}{2}$

d) $y = \frac{2}{3}x + 1$

4. a) 3 b) 10
c) $\sqrt{164}$ d) $\sqrt{162}$

5. a) $\sqrt{53}$ b) 21.8



b) slope $XY = \frac{3}{2}$; slope $YZ = -\frac{2}{3}$; since the slopes are negative reciprocals, $\angle XYZ = 90^\circ$.

c) 26 square units

7. $PQ = QR = PR = 2$; all three sides have equal length, so $\triangle PQR$ is equilateral.

8. a) $DE = EF = \sqrt{26}$; since two sides have equal length, $\triangle DEF$ is isosceles.

b) $G\left(-\frac{3}{2}, \frac{1}{2}\right)$ is the midpoint of DE ; $H\left(\frac{1}{2}, \frac{7}{2}\right)$ is the midpoint of EF .

c) slope $GH = \frac{3}{2}$; slope $DF = \frac{3}{2}$; since the slopes are equal, the two segments are parallel.

9. a) 42.4 m

b) Yes. The line $y = x - 5$ contains the points A and B. Since it also contains the point C, and C is between A and B, C is on the chair lift.

10. a) $x^2 + y^2 = 49$ b) $x^2 + y^2 = 37$ c) $x^2 + y^2 = 6.25$

11. a) $x^2 + y^2 = 13.69$ b) $x^2 + y^2 = 8$
c) $x^2 + y^2 = 81$ d) $x^2 + y^2 = 34$

12. a) Check that both endpoints are on the circle.

$C(-2, 5)$:

L.S. = $x^2 + y^2$ **R.S.** = 29

= $(-2)^2 + 5^2$

= $4 + 25$

= 29

L.S. = **R.S.**

$D(-5, 2)$:

L.S. = $x^2 + y^2$ **R.S.** = 29

= $(-5)^2 + 2^2$

= $25 + 4$

= 29

L.S. = **R.S.**

b) $y = -x$

13. a) Check that the point $B(-3, -2)$ satisfies the equation $x^2 + y^2 = 13$.

L.S. = $x^2 + y^2$ **R.S.** = 13

= $(-3)^2 + (-2)^2$

= $9 + 4$

= 13

L.S. = **R.S.**

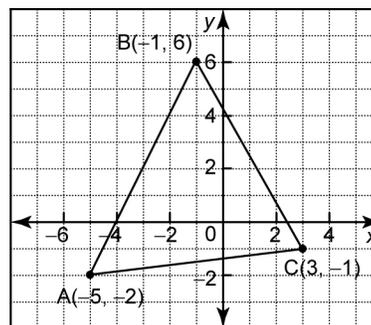
b) $y = \frac{2}{3}x$ c) $y = -\frac{3}{2}x - \frac{13}{2}$

Chapter 2 Practice Test

1. C
2. D
3. A
4. B
5. D

6. a) $(-2, -3)$; $\sqrt{200}$ b) $\left(\frac{3}{2}, -\frac{7}{2}\right)$; $\sqrt{58}$

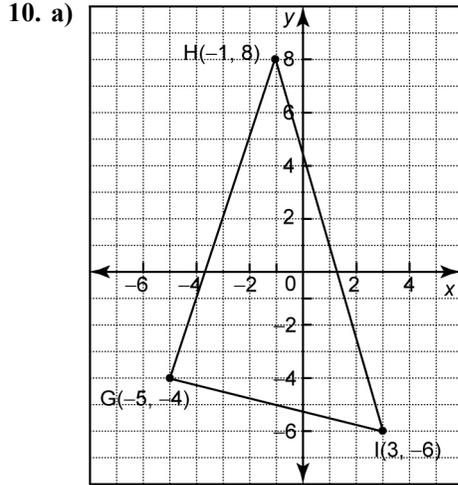
7. a)



b) $y = \frac{3}{4}x + \frac{7}{4}$ c) $y = -\frac{1}{2}x + \frac{1}{2}$

8. a) 7.2 km b) (5, 5)

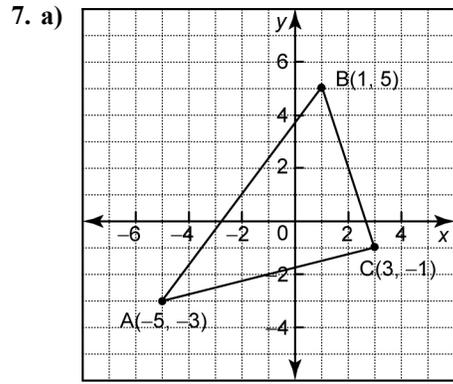
9. a) $DE = \sqrt{68}$; $EF = \sqrt{164}$; $DF = \sqrt{104}$
 b) $\triangle DEF$ is scalene because the three sides have different lengths.
 c) 31.3 units
 d) Construct $\triangle DEF$ by plotting the vertices and connecting them with line segments. Select the sides of the triangle and then measure their lengths. Select the vertices of the triangle and then construct the triangle interior. Select the triangle interior and measure the perimeter.



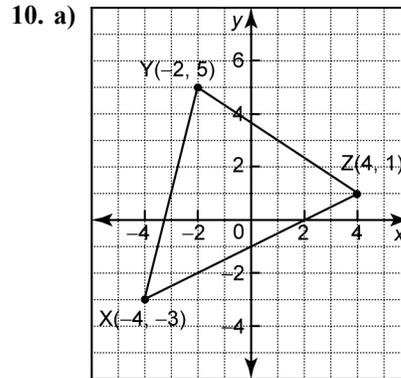
- b) $y = \frac{5}{6}x + \frac{1}{6}$ c) $y = -\frac{1}{3}x + 1$ d) $y = \frac{2}{7}x - \frac{18}{7}$

Chapter 2 Test

1. A
 2. D
 3. C
 4. B
 5. A
 6. a) $(-1, -1)$; $\sqrt{164}$
 b) $(-\frac{3}{2}, -\frac{5}{2})$; $\sqrt{26}$



- b) $y = \frac{7}{2}x + \frac{3}{2}$ c) $y = -\frac{3}{4}x - \frac{1}{2}$
 8. a) 10.2 km b) (6, 5)
 9. a) $DE = \sqrt{45}$; $EF = 6$; $DF = \sqrt{45}$
 b) isosceles; $DE = DF$
 c) 19.4 units
 d) Construct $\triangle DEF$ by plotting the vertices and connecting them with line segments. Select the sides of the triangle and then measure their lengths. Select the vertices of the triangle and then construct the triangle interior. Select the triangle interior and measure the perimeter.



- b) $y = \frac{6}{5}x + \frac{9}{5}$ c) $y = -\frac{1}{4}x + \frac{1}{4}$ d) $y = -2x + 1$