

Review of Analytic Geometry

1. $(4, 6.5)$

2. $y = -\frac{1}{4}x + 11.5$

(or $y = -0.25x + 11.5$)

3. $y = -\frac{1}{2}x - 2$

4. $y = -\frac{1}{4}x$

5. $d = \sqrt{53}$
 $= 7.28$ units

6. $P(-17.5, 37)$

7. $(-9, -6.8)$

8. intersection point $(-6, 3.6)$

$d = \sqrt{272.96}$
 $= 16.52$ units

9. Midpoint $(1, 6)$

$d = \sqrt{1521}$
 $= 39$ units

10. $d_{AB} = \sqrt{113}$
 $= 10.63$

$d_{BC} = \sqrt{25}$
 $= 5$

$d_{AC} = \sqrt{116}$

$= 10.77$
 Perimeter $= 26.4$ units

ANSWER Key

Problem Solving Activities

1. slope l_2 $8x - 2y + 7 = 0$
 $-2y = -8x - 7$
 $y = 4x + 3.5$
 slope \nearrow

slope $l_1 = 4$

Equation l_1
 $y = 4x + b$

$8 = 4(5) + b$

$8 = 20 + b$

$-12 = b$

point $(5, 8)$

ANSWER
 Equation of line l_1
 is $y = 4x - 12$

2. Midpoint $M(-3, -3.5)$

$d_{AM} = \sqrt{(-9 - (-3))^2 + (6 - (-3.5))^2}$
 $= \sqrt{126.25}$
 $= 11.24$

$d_{MB} = \sqrt{(7 - (-3))^2 + (-5 - (-3.5))^2}$
 $= \sqrt{102.25}$
 $= 10.11$

$d_{AB} = \sqrt{(7 - (-9))^2 + (-5 - 6)^2}$
 $= \sqrt{377}$
 $= 19.42$

$P_{\Delta AMB} = 11.24 + 10.11 + 19.42$
 $= 40.77$ units

$$3. \quad \overline{ST} \perp \overline{SV}$$

$$\begin{aligned} \text{slope } \overline{ST} &= \frac{34 - 42}{14 - 8} \\ &= \frac{-8}{6} \\ &= -\frac{4}{3} \end{aligned}$$

$$\perp \text{ Slope } \overline{SV} = \frac{3}{4}$$

Equation \overline{SV}

$$y = \frac{3}{4}x + b$$

Point
S(8, 42)
x y

$$42 = \frac{3}{4}(8) + b$$

$$42 = 6 + b$$

$$36 = b$$

Since V is the y-intercept
its coordinates are (0, 36)

4. Restaurant is midpoint
of L(2, 13) and V(14, 4)

So R(8, 8.5) are coordinates
of the restaurant.

Distance M(15, 9) to R(8, 8.5)

$$d = \sqrt{(8-15)^2 + (8.5-9)^2}$$

$$= \sqrt{49.25}$$

$$= 7.02$$

→ Nearest tenth (one decimal)

7.0 km

from Maggie's town
to the Restaurant.

Eqn Lake Road

$$\begin{aligned} \text{slope} &= \frac{1 - -7}{8 - 4} \\ &= 2 \end{aligned}$$

$$\begin{aligned} y &= 2x + b \\ 1 &= 2(8) + b \\ 1 &= 16 + b \\ -15 &= b \end{aligned}$$

P(8, 1)

$$\boxed{y = 2x - 15}$$

LAKE

Eqn SMITH

$$\text{Slope } \perp \text{ to LAKE} = -\frac{1}{2}$$

$$y = -\frac{1}{2}x + b \quad \text{Point}(13, -9)$$

$$-9 = -\frac{1}{2}(13) + b$$

$$-9 = -6.5 + b$$

$$-2.5 = b$$

$$y = -\frac{1}{2}x - 2.5$$

INTERSECTION Point

$$2x - 15 = -0.5x - 2.5$$

$$2.5x = 12.5$$

$$x = 5$$

$$y = 2(5) - 15$$

$$y = -5$$

The point where Pietra
reaches Lake Road
is (5, -5)