

Exercise Set 10.7

In Exercises 1–3, find the distance between each pair of points.

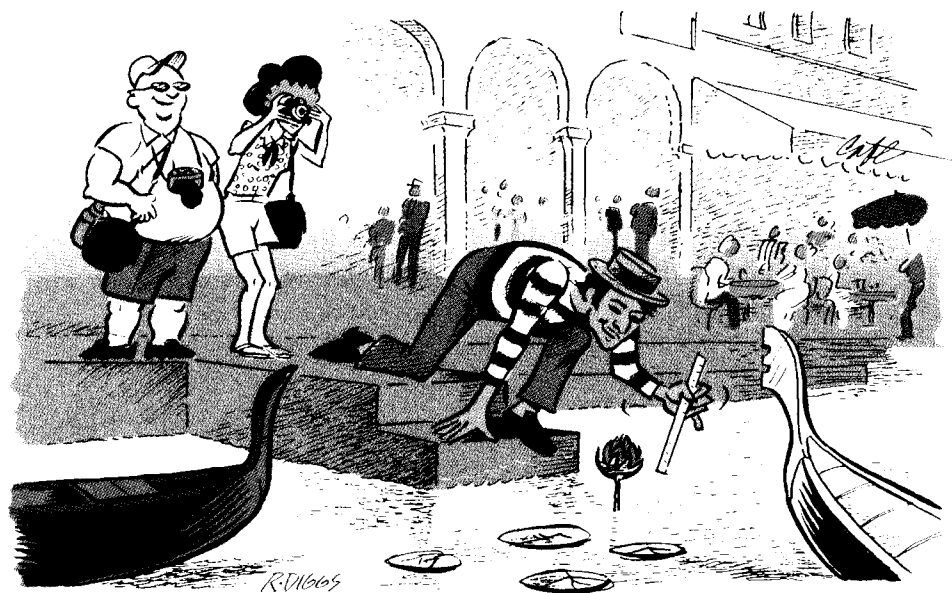
- 1.* $(10, 20)$, $(13, 16)$ 2. $(15, 37)$, $(42, 73)$ 3. $(-19, -16)$, $(-3, 14)$
4. Find the perimeter of $\triangle ABC$ with vertices $A(2, 4)$, $B(8, 12)$, and $C(24, 0)$.
5. Determine whether $\triangle DEF$ with vertices $D(6, -6)$, $E(39, -12)$, and $F(24, 18)$ is scalene, isosceles, or equilateral.
- 6.* Determine whether $\triangle GHI$ with vertices $G(2, 6)$, $H(18, 2)$, and $I(12, 12)$ is isosceles, right, isosceles right, or equilateral.

For Exercises 7–9 use $\triangle ABC$ with vertices $A(-2, -2)$, $B(4, 0)$, and $C(0, 6)$.

7. Find midpoints M , N , and P of \overline{AC} , \overline{CB} , and \overline{AB} , respectively.
8. Find the slopes of \overline{MN} and \overline{AB} , the slopes of \overline{MP} and \overline{BC} , and the slopes of \overline{NP} and \overline{AC} . How do they compare?
9. Find the lengths of \overline{MN} and \overline{AB} , the lengths of \overline{MP} and \overline{BC} , and the lengths of \overline{NP} and \overline{AC} . How do they compare?

For Exercises 10–12, find the equation of the circle.

10. Center $(0, 0)$; $r = 4$ 11. Center $(2, 0)$; $r = 5$ 12. Center $(3, 3)$; through $(0, -1)$
- 13.* Guido Palumbo is a Venetian gondolier. Guido needs to know how deep it is in front of his pier. He notices a water lily sticking straight up from the water, whose blossom is 8 cm above the water's surface. Guido pulls the lily to one side, keeping the stem straight, until the blossom touches the water at a spot 40 cm from where the stem first broke the water's surface. From this data Guido is able to calculate the depth of the water. Can you? What is the depth of the water?



- 14.* A circle of radius 6 has a chord AB of length 6. If point C is selected randomly on the circle, what is the probability that $\triangle ABC$ is obtuse?