# EXTRA PRACTICE — Exercises



## Unit VII – Relations of Rational Number Degree
## Part D – Problem-Solving with Relations Containing Radicals
## Lesson 1 – The "Distance" Relation

Solve each of the following for the indicated value by illustrating the problem on a coordinate plane and using the distance formula..

1. Find the distance between the two points $P_1(^-3,^-6)$ and $P_2(4,^-4)$.

2. The co-ordinates of the vertices of triangle ABC are given by A (0,0), B (8,4) and C (8,1). Is triangle ABC isosceles? (An isosceles triangle has two equal sides.)

3. Find all values of $x$ such that the distance between A (1,-5) and B ($x$,7) is 13 units.

4. Find the distance between the two points $P_1(-\sqrt{3},-4)$ and $P_2(3\sqrt{3},-3)$

5. Find the coordinates of F if M is the midpoint of line segment FG (in symbols, $\overline{FG}$), where M has coordinates $\left(\frac{1}{2},\ \frac{^-5}{2}\right)$ and G has coordinates $(4,^-7)$.

   Note: This problem requires the use of the midpoint formula, not the distance formula. Given $P_1(x_1,y_1)$ and $P_2(x_2,y_2)$, the midpoint $M$ has the coordinates $\left(\frac{x_1+x_2}{2},\ \frac{y_1+y_2}{2}\right)$.

# EXTRA PRACTICE — Answer Key



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Solve each of the following for the indicated value by illustrating the problem on a coordinate plane and using the distance formula..

1. $d = \sqrt{53}$

2. The triangle is not Isoceles. No two sides have the same number

3. $x = 6, -4$ therefore, the points are (6, 7) and ($-4$, 7).

4. Distance is 7.

5. The coordinates are ($-3$, 2).