THE DISTANCE BETWEEN TWO POINTS

Teaching Guidelines

Subject: Mathematics

Topics: Algebra

Grades: 6 - 12

Knowledge and Skills:

- Can interpret (x,y,z) notation as the position of a point in three-dimensional space
- Can find the distance between two points in three-dimensional space

Procedure: This project should be done by students individually or teams of two.

Distribute the handout and ensure that students understand the task.

Answers:

(x_1,y_1,z_1)	(x_2,y_2,z_2)	Distance
(3,5,8)	(4,10,14)	8
(4,9,1)	(7,0,12)	15
(18,3,22)	(5,12,19)	16
(-4,12,35)	(14,7,50)	24
(-12,6,-15)	(-16,-2,0)	17
(25,-50,25)	(-25,50,-25)	122
(2.25,5.45,9.15)	(3.15,8.75,7.95)	3.62
(15.36,24.17,18.72)	(22.78,12.39,32.18)	19.36
(128,94,276)	(253,146,275)	135
(265,4,74)	(4,265,74)	369
(-340,25,212)	(-120,-202,0)	381
(1005,2144,1546)	(1010,2150,1550)	9

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Skill Set

(x_1, y_1, z_1) and (x_2, y_2, z_2) represent the coordinates of two points in three-dimensional space, in meters. Find the distance between the two points in each case. (Round the computed distances to the lowest decimal place that occurs in the coordinates.)

(x_1, y_1, z_1)	(x_2, y_2, z_2)	Distance
(3,5,8)	(4,10,14)	
(4,9,1)	(7,0,12)	
(18,3,22)	(5,12,19)	
(-4,12,35)	(14,7,50)	
(-12,6,-15)	(-16,-2,0)	
(25,-50,25)	(-25,50,-25)	
(2.25,5.45,9.15)	(3.15,8.75,7.95)	
(15.36,24.17,18.72)	(22.78,12.39,32.18)	
(128,94,276)	(253,146,275)	
(265,4,74)	(4,265,74)	
(-340,25,212)	(-120,-202,0)	
(1005,2144,1546)	(1010,2150,1550)	