

Teacher Answer Key

Planetary Travel Time

The solar system is huge! Using current technology, it takes a long time to get from Earth to another planet. Do the math and figure out just how long! Then, figure out how long it would take if we could travel at the speed of light (~1,079,000,000 km/hr).

First, figure out how far you would have to travel, on average, if you could travel in a straight line to your destination.

Write an equation for determining the distance Mercury is from Earth:

Mercury distance from Earth = Earth distance from the Sun - Mercury dist. from the Sun

Write an equation for determining the distance Jupiter is from Earth:

Jupiter distance from Earth = Jupiter distance from the Sun - Earth dist. from the Sun

Planet/Dwarf Planet	Distance from the Sun (km)	Distance from Earth (km)
Mercury	57,900,000	91,700,000
Venus	108,200,000	41,400,000
Earth	149,600,000	0
Mars	227,900,000	78,300,000
Jupiter	778,600,000	629,000,000
Saturn	1,433,500,000	1,283,900,000
Uranus	2,872,500,000	2,722,900,000
Neptune	4,495,100,000	4,345,500,000
Pluto	5,906,400,000	5,756,800,000

Next, compute the length of time (in hours) it would take you if you were walking, riding a bike, driving a car, riding on a rocket, or traveling at the speed of light.

Write an equation for determining travel time, t: **t = distance ÷ rate of travel**

Planet/Dwarf Planet	Walking (5 km/hr)	Riding Bike (20 km/hr)	Driving Car (120 km/hr)	Riding Rocket (365,000 km/hr)	Traveling at the speed of light
Mercury	18,340,000	4,585,000	764,167	251.23	0.08
Venus	8,280,000	2,070,000	345,000	113.42	0.04
Earth	0	0	0	0	0
Mars	15,660,000	3,915,000	652,500	214.52	0.07
Jupiter	125,800,000	31,450,000	5,241,667	1,723.29	0.58
Saturn	256,780,000	64,195,000	10,699,167	3,517.53	1.19
Uranus	544,580,000	136,145,000	22,690,833	7,460.00	2.52
Neptune	869,100,000	217,275,000	36,212,500	11,905.48	4.03
Pluto	1,151,360,000	287,840,000	47,973,333	15,772.05	5.34