

LESSON

Problem Solving

3-6 Solving Compound Inequalities

Write and solve an inequality for each situation.

1. The Mexican Tetra is a tropical fish that requires a water temperature between 68 and 77 degrees Fahrenheit, inclusive. An aquarium is heated 8 degrees so that a Tetra can live in it. What temperatures could the water have been before the heating?

3. A local company is hiring trainees with less than 1 year of experience and managers with 5 or more years of experience. Graph the solutions.



2. Nerissa's car can travel between 380 and 410 miles on a full tank of gas. She filled her gas tank and drove 45 miles. How many more miles can she drive without running out of gas?

4. Marty's allowance is doubled and is now between \$10 and \$15, inclusive. What amounts could his allowance have been before the increase? Graph the solutions.



The elliptical orbits of planets bring them closer to and farther from the Sun at different times. The closest (perihelion) and furthest (aphelion) points are given for three planets below. Use this data to answer questions 5–7.

5. Which inequality represents the distances d from the sun to Neptune?
- A $d \leq 4444.5$
 B $d \leq 4545.7$
 C $4444.5 \leq d \leq 4545.7$
 D $d = 4444.5$ OR $d \geq 4545.7$

Planet	Perihelion (in 10^6 km)	Aphelion (in 10^6 km)
Uranus	2741.3	3003.6
Neptune	4444.5	4545.7
Pluto	4435.0	7304.3

6. A NASA probe is traveling between Uranus and Neptune. It is currently between their orbits. Which inequality shows the possible distance p from the probe to the Sun?
- F $1542.1 < p < 1703.2$
 G $2741.3 < p < 4545.7$
 H $3003.6 < p < 4444.5$
 J $7185.8 < p < 7549.3$

7. At what distances o do the orbits of Neptune and Pluto overlap?
- A $4435.0 \leq o \leq 4444.5$
 B $4435.0 \leq o \leq 4545.7$
 C $4444.5 \leq o \leq 7304.3$
 D $4545.7 \leq o \leq 7304.3$