

**COMPOUND INEQUALITIES** Solve the inequality. Then graph your solution.

37.  $-2 \leq x - 7 \leq 11$       38.  $-16 \leq 3x - 4 \leq 2$       39.  $-5 \leq -n - 6 \leq 0$

40.  $-2 < -2n + 1 \leq 7$       41.  $-7 < 6x - 1 < 5$       42.  $-8 < \frac{2}{3}x - 4 < 10$

43.  $x + 2 \leq 5$  or  $x - 4 \geq 2$       44.  $3x + 2 < -10$  or  $2x - 4 > -4$

45.  $-5x - 4 < -1.4$  or  $-2x + 1 > 11$       46.  $x - 1 \leq 5$  or  $x + 3 \geq 10$

47.  $-0.1 \leq 3.4x - 1.8 < 6.7$       48.  $0.4x + 0.6 < 2.2$  or  $0.6x > 3.6$

49. **COMMISSION** Your salary is \$1250 per week and you receive a 5% commission on your sales each week. What are the possible amounts (in dollars) that you can sell each week to earn at least \$1500 per week?

50. **PARK FEES** You have \$50 and are going to an amusement park. You spend \$25 for the entrance fee and \$15 for food. You want to play a game that costs \$.75. Write and solve an inequality to find the possible numbers of times you can play the game. If you play the game the maximum number of times, will you have spent the entire \$50? Explain.

51. **GRADES** A professor announces that course grades will be computed by taking 40% of a student's project score (0–100 points) and adding 60% of the student's final exam score (0–100 points). If a student gets an 86 on the project, what scores can she get on the final exam to get a course grade of at least 90?

**SCIENCE CONNECTION** In Exercises 52–54, use the following information.

The international standard for scientific temperature measurement is the Kelvin scale. A Kelvin temperature can be obtained by adding 273.15 to a Celsius temperature. The daytime temperature on Mars ranges from  $-89.15^\circ\text{C}$  to  $-31.15^\circ\text{C}$ . **Source:** NASA

52. Write the daytime temperature range on Mars as a compound inequality in degrees Celsius.

53. Rewrite the compound inequality in degrees Kelvin.

54. **RESEARCH** Find the high and low temperatures in your area for any particular day. Write three compound inequalities representing the temperature range in degrees Fahrenheit, in degrees Celsius, and in degrees Kelvin.

**WINTER** In Exercises 55 and 56, use the following information.

The Ontario Winter Severity Index (OWSI) is a weekly calculation used to determine the severity of winter conditions. The OWSI for deer is given by

$$I = \frac{p}{30} + \frac{d}{30} + c$$

where  $p$  represents the average Snow Penetration Gauge reading (in centimeters),  $d$  represents the average snow depth (in centimeters), and  $c$  represents the *chillometer reading*, which is a measure of the cold (in kilowatt-hours) based on temperature and wind chill. An extremely mild winter occurs when  $I < 5$  on average, and an extremely severe winter occurs when  $I > 6.5$  on average. A deer can tolerate a maximum snow penetration of 50 centimeters. Assume the average snow depth is 60 centimeters. **Source:** Snow Network for Ontario Wildlife

55. What weekly chillometer readings will produce extremely severe winter readings?

56. What weekly chillometer readings will produce extremely mild winter readings?

**FOCUS ON APPLICATIONS**



**REAL LIFE**

**MARS** is the fourth planet from the sun. A Martian year is 687 Earth days long, but a Martian day is only 40 minutes longer than an Earth day. Mars is also much colder than Earth, as discussed in Exs. 52–54.

**APPLICATION LINK**

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