

PROBLEM SOLVING

EXAMPLE 2

on p. 326
for Exs. 16

16. **TAKS REASONING** The table shows the approximate home range size of big cats (members of the *Panthera* genus) in their natural habitat and the percent of time that the cats spend pacing in captivity.

Big cat (<i>Panthera</i> genus)	Lion	Jaguar	Leopard	Tiger
Home range size (km ²)	148	90	34	48
Pacing (percent of time)	48	21	11	16

- Make a scatter plot of the data.
- Describe the correlation of the data.
- The snow leopard's home range size is about 39 square kilometers. It paces about 7% of its time in captivity. Does the snow leopard fit the pacing trend of cats in the *Panthera* genus? Explain your reasoning.

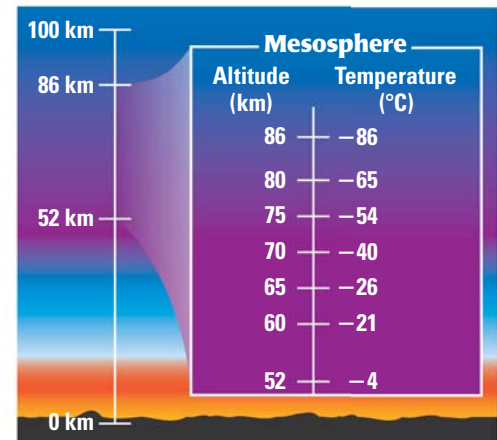
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EXAMPLES 3 and 4

on pp. 327–328
for Exs. 17–18

17. **EARTH SCIENCE** The mesosphere is a layer of atmosphere that lies from about 50 kilometers above Earth's surface to about 90 kilometers above Earth's surface. The diagram shows the temperature at certain altitudes in the mesosphere.

- Make a scatter plot of the data.
- Write an equation that models the temperature (in degrees Celsius) as a function of the altitude (in kilometers) above 50 kilometers.
- At about what rate does the temperature change with increasing altitude in the mesosphere?



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18. **ALLIGATORS** The table shows the weights of two alligators at various times during a feeding trial. Make two scatter plots, one for each alligator, where x is the number of weeks and y is the weight of the alligator. Draw lines of fit for both scatter plots. Compare the approximate growth rates.

Weeks	0	9	18	27	34	43	49
Alligator 1 weight (pounds)	6	8.6	10	13.6	15	17.2	19.8
Alligator 2 weight (pounds)	6	9.2	12.8	13.6	20.2	21.4	24.3

19. **GEOLOGY** The table shows the duration of several eruptions of the geyser Old Faithful and the interval between eruptions. Write an equation that models the interval as a function of an eruption's duration.

Duration (minutes)	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0
Interval (minutes)	50	57	65	71	76	82	89	95