



## Objective 10 TEKS 8.14.A Review

### 8.14.A Identify and apply mathematics to everyday experiences, to activities in and outside of school, with other disciplines, and with other mathematical topics.

You will need to use a wide range of mathematical concepts when solving problems involving everyday experiences, other disciplines, or other mathematical topics. Some of the concepts you may need to use are shown below.

<b>Formulas</b> area perimeter volume surface area	<b>Measures of Central Tendency</b> <i>mean</i> = average <i>mode</i> = most frequent <i>median</i> = middle value	<b>Pythagorean Theorem</b> $a^2 + b^2 = c^2$
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**EXAMPLE** Alison plans to use a cylindrical box as a stand to display miniature glass insects she bought in Italy. The cylindrical box has an 8 inch diameter. She wants to cover the cylinder with fabric. The surface area of the cylinder gives the number of square inches of black velvet that Alison needs. The formula for the total surface area of a cylinder is  $S = 2\pi rh + 2\pi r^2$ .

What other information does Alison need to find the number of square inches of fabric she will need to cover the box?

$$S = (2 \cdot \pi \cdot 4 \cdot h) + [2 \cdot \pi \cdot (4)^2] \quad \pi = 3.14, r = 4 \text{ in.}, h = ?$$

Alison also needs to know the height of the box.

**YOU DO IT** Hayley is researching weather data to determine whether the weather person made an accurate prediction. The weather person predicted that the high temperatures would average 90°F over 6 days. The list below shows the weather for the past 5 days.

$$92^\circ, 84^\circ, 94^\circ, 86^\circ, 90^\circ$$

What will the high temperature need to be on Day 6 for the weather prediction to be accurate?

The measure of central tendency that corresponds to the average is the **mean**.

Write an equation using the mean. Let  $x$  = temperature for Day 6.

$$\frac{92^\circ + 84^\circ + 94^\circ + 86^\circ + 90^\circ + x}{6} = 90^\circ$$

$$\frac{446^\circ + x}{6} = 90^\circ$$

$$\frac{446^\circ + x}{6} = 90^\circ$$

$$446^\circ + x = 540^\circ$$

$$x = 94^\circ$$

The high temperature will need to be **94** °F for the prediction to be accurate.