Problem of the Week Archive

Penguin Awareness Day – January 16, 2017

Problems & Solutions

Friday January 20th is Penguin Awareness Day. To celebrate, let's learn a few fun penguin facts while solving some math problems!

There are 17 different species of penguins. The largest penguins belong to the Emperor Penguin species. A female Emperor Penguin, after laying an egg, leaves for two months to hunt. While the female is gone, the male stays behind to protect the egg and keep it warm. During this time, the male penguin eats NOTHING and loses an average of 26 pounds.

If the average male Emperor Penguin will grow to weigh 88 pounds, what percent of its total body weight is lost over the 2-month period? Express your answer as a decimal to the nearest tenth.

\[
\text{Percentage lost} = \frac{26}{88} \times 100 \approx 29.5\%
\]

Over the 2-month period (61 days), what is the male penguin’s average weight loss, in pounds per day? Express your answer as a decimal to the nearest tenth.

\[
\text{Average weight loss per day} = \frac{26}{61} \approx 0.4\text{ pounds per day.}
\]

In addition to being the largest species, Emperor Penguins can also dive to the deepest depths of any penguin. The deepest recorded dive of an Emperor Penguin is around 1850 feet. Ocean pressure increases by 14.5 psi (pounds per square inch) for every 33 feet of depth.

At the bottom of the Emperor Penguin’s deepest dive, how many pounds per square inch of pressure is it under? Express your answer to the nearest whole number.

\[
\text{Pressure at the bottom} = \frac{1850}{33} \times 14.5 \approx 813\text{ psi.}
\]

If the greatest recorded underwater pressure a human has ever withstood is 191 psi, then, compared to a human, how many times greater is the maximum amount of underwater pressure an Emperor Penguin can withstand? Express your answer to the nearest whole number.

\[
\text{Times greater} = \frac{813}{191} \approx 4\text{ times as much pressure.}
\]
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