

Compute your age in days:

How many days old are you? Use the information below to help you find out!

Below are the number of days in each month.

Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
31	28*	31	30	31	30	31	31	30	31	30	31

*In a leap year, February has 29 days.

To compute your age in days, it helps to know how many days you lived during each calendar year since you were born.

EXAMPLE

Addie was born on October 12, 2004. How many days old was Addie on March 23, 2012?

We can organize our work with a chart like the one on the right.

Year	Days Lived
2004	$19+30+31 = 80$
2005	365
2006	365
2007	365
2008	366
2009	365
2010	365
2011	365
2012	$31+29+23 = 83$

Since she was born on October 12, Addie lived for $31 - 12 = 19$ full days in October of 2004. She also lived for 30 days in November and 31 days in December of 2004, for a total of $19+30+31 = 80$ days in 2004.

Addie lived for 7 complete calendar years (2005-2011). 2008 was a leap year. So, Addie lived for 366 days in 2008, and 365 days for each of the other full years.

Next, we compute the number of days Addie lived in 2012. Addie lived through all of January (31 days), all of February (29 days, since 2012 is a leap year), and 23 days in March, for a total of $31+29+23 = 83$ days.

Finally, we add the totals for each year.

We can use multiplication to add the seven full years:

$$\begin{aligned} & 365+365+365+366+365+365+365 \\ & = 365+365+365+365+1+365+365+365 \\ & = (7 \times 365) + 1 = 2,556. \end{aligned}$$

Then, add the days Addie lived in 2004 and 2012 to get $2,556+80+83 = 2,719$.

Addie was **2,719** days old on March 23, 2012.

How many days old are you today?

EXAMPLE

Complete the sentence below with the best answer from the choices provided.

The amount of time you sleep each night is best described in _____.
 (seconds, hours, or weeks)

The amount you sleep each night is much less than one week. In a whole month, most people only sleep a little more than 1 week all together. The number of seconds most people sleep each night is very large.

Most people sleep between 6 and 10 hours each night.

You can describe how long you sleep each night in any unit of time, but hours is easiest to understand, because the number of hours is not very large or very small. So, the amount of time you sleep each night is best described in **hours**.

Choosing the right unit can make measurements easier to understand.



PRACTICE

Complete each sentence below with the best answer from the choices provided.

83. The time it takes to microwave popcorn is best described in _____.
 (seconds or hours)
84. The weight of one orange is best described in _____.
 (ounces or tons)
85. The volume of soda in a can is best described in _____.
 (fluid ounces or gallons)
86. The height of a house is best described in _____.
 (inches or feet)
87. The capacity of a trash can is best described in _____.
 (ounces or gallons)
88. The age of a large tree is best described in _____.
 (hours, weeks, or years)
89. The width of this book is best described in _____.
 (centimeters, meters, or kilometers)
90. The weight of a jumbo jet is best described in _____.
 (ounces, pounds, or tons)

PRACTICE

Complete each sentence below with the best answer from the choices below. Choices include customary and metric units. No answer choice is used more than once, and some choices will not be used at all.

Length: centimeters (cm), inches (in), feet (ft), meters (m), miles (mi)

Weight: grams (g), ounces (oz), pounds (lb), tons

Volume: milliliters (mL), fluid ounces (fl oz), liters (L), gallons (gal)

Time: seconds (sec), minutes (min), hours (hr), months, years

91. An adult caterpillar is about 5 _____ long.
92. My cup contains 11 _____ of juice.
93. I can ride my bike 10 _____ in 1 hour.
94. An eyedropper holds about 2 _____ of liquid.
95. The SUV weighs about 3,500 _____.
96. The height of the kitchen counter is 34 _____.
97. The football game on television was 3 _____ long.
98. Together, a nickel and two pennies weigh about 10 _____.
99. An adult elephant weighs about 5 _____.
100. It takes about 3 _____ to read this sentence.
101. A toilet uses about 10 _____ of water per flush.

PRACTICE

Make your best guess for each value below. Then, find the actual value by measuring it, reading its label, or looking it up.

102. The length of a dollar bill in inches. **102.** _____
103. The number of miles from Los Angeles to New York. **103.** _____
104. The weight in ounces of a box of cereal. **104.** _____
105. The length in centimeters of this sentence. **105.** _____
106. The weight of a quarter in grams. **106.** _____
107. The volume of shampoo in a bottle in fluid ounces. **107.** _____
108. The weight in pounds of one gallon of milk. **108.** _____
109. The capacity in gallons of a kitchen sink. **109.** _____

PRACTICE

It is useful to understand approximate relationships between customary and metric units. Fill in each blank below with a customary unit that completes each sentence.

110. Five kilometers is about the same distance as 3 _____.
111. One liter is a little more than 1 _____.
112. One kilogram is a little more than 2 _____.
113. Two and a half centimeters is about the same length as 1 _____.
114. One meter is a little longer than 1 _____.

PRACTICE

115. For a quarter, Pat can play a video game for 5 minutes. How many dollars worth of quarters does Pat need to play the same video game for an hour? **115.** _____

116. Dave's best marathon time is 5 hours and 18 minutes. Patrick's best marathon time is half as long as Dave's. What is Patrick's best marathon time in hours and minutes? **116.** ___hr ___min

117. If 3 cups and 7 fluid ounces of water are added to a jug, it will contain 7 cups and 3 fluid ounces of water. How many cups and fluid ounces of water does the jug contain now? **117.** ___c ___fl oz

118. The number of inches in 8 feet is equal to the number of fluid ounces in ___ cups. **118.** _____

119. Gary is a tiny beast who can carry a pack that is four times his weight. Together, Gary and his pack weigh 1 lb 4 oz. What is Gary's weight in ounces? **119.** _____

120. To convert a temperature in degrees Celsius to degrees Fahrenheit, multiply the number of Celsius degrees by 9, divide the result by 5, then add 32. Convert 40°C to degrees Fahrenheit. **120.** _____

PRACTICE

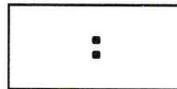
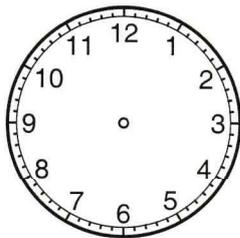
121. ★ Grogg's snail can slime one inch every second. How many *minutes* will it take for Grogg's snail to slime 5 yards? 121. _____

122. ★ Four hundred pennies weigh 1 kilogram. Yerg's penny collection weighs 700 grams. How many pennies does Yerg have in his collection? 122. _____

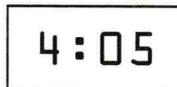
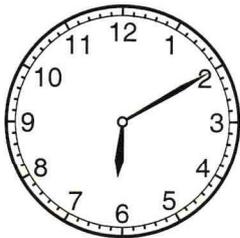
Use the following information for problems 123-124:

Klurg has two clocks on his night stand: a digital clock and an analog clock. When the power goes out, both clocks stop running. When the power comes back on, his digital clock resets to 12:00. His analog clock continues running from the previous time.

123. ★ One night, while Klurg is asleep, the power turns off at 3:00 and stays out for 45 minutes. What time will be displayed on each of Klurg's clocks at exactly 7:00?

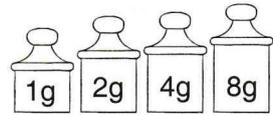


124. ★★ One morning, Klurg wakes up to find his clocks displaying the times shown below. What time was it when the power went out? 124. _____

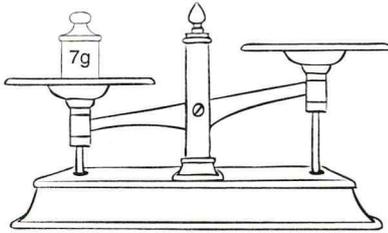


PRACTICE

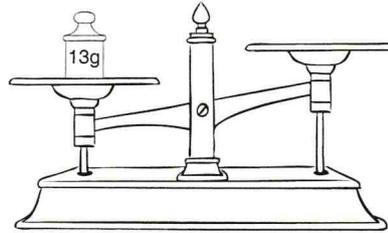
Professor Grok has only the four weights shown on the right (one of each). Show how some or all of the weights can be placed on the **right side** of each scale below to balance the scale.



125.



126.

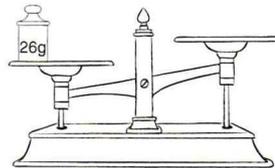
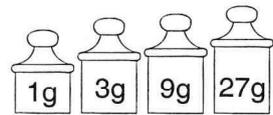


127. Captain Kraken places a gold coin on a balance scale. Professor Grok cannot balance the scale using only the four weights shown above. What is the smallest possible number of grams Kraken's coin could weigh?

127. _____

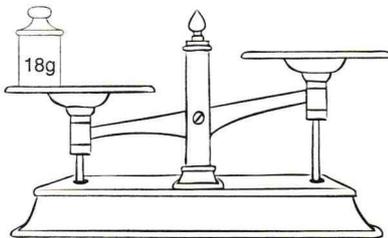
Use the following for Problems 128 to 130:

Professor Grok has only the four weights shown (one of each). He can place these weights on **both sides** of the scale. For example, Professor Grok can balance the scale below by placing the 27-gram weight on the right, and the 1-gram weight on the left.

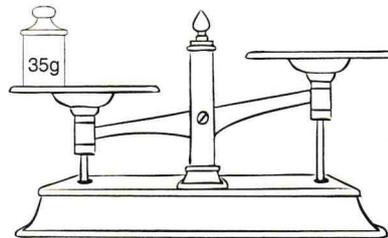


Show how some or all of the four weights above can be placed to balance each scale below.

128.



129.



130. Grogg places a tribble on a balance scale. Professor Grok cannot balance the scale using only the four weights above. What is the smallest number of grams Grogg's tribble could weigh?

130. _____

Investigations

If you completed the previous projects, you already know that a bathtub can be used to measure volume, and a weighted string can be used to measure time.

In the problems below, you will explore how to use a ruler to measure weight, a stopwatch to measure distance, and a gallon jug to measure time.



Use what you know about units and measures to complete the investigations below.

PRACTICE

For each investigation below, describe one way you could use the tool listed to complete the given task.

131. How could you use a ruler to compare the weight of a dollar worth of dimes to the weight of a dollar worth of quarters?



132. How could you use a stopwatch to figure out how far away you are from a lightning strike?



133. How could you use a one-gallon milk jug to create a timer that will accurately measure 5 minutes?

