

Arithmetic

Practice Problems

Fahrenheit temperatures can be calculated in terms of Celcius temperatures using the following formula:

$$F = C \times \frac{9}{5} + 32$$

Implement the functions `celciusToFahrenheit(c)` and `fahrenheitToCelcius(f)` that converts the temperatures.

Colors in a computer are sometimes represented using integer RGB values, corresponding to the amount of red, green, and blue it is composed of. These values are integers between 0 and 255. For example, (0,0,0) is black, and (255,255,255) is white. Given two colors, we can combine them to form a palette (the colors in between the two). We can decide how many colors we want in this palette (the midpoints). For example, we can combine the colors crimson (RGB = (220, 20, 60)) and mint (RGB = (189, 252, 201)) using 3 midpoints to obtain:

```
color0: (220, 20, 60) # crimson
color1: (212, 78, 95)
color2: (205, 136, 131)
color3: (197, 194, 166)
color4: (189, 252, 201) # mint
```

This palette has 5 colors. We could then ask ourselves: what is color 2? Implement the function `getColor(r1, g1, b1, r2, g2, b2, midpoints, n)` that takes as input the two initial colors, the number of midpoints, and the number of the color in the palette, and returns the RGB value of the n-th color. For example, following the case above: `getColor(220, 20, 60, 189, 252, 201, 3, 1)` returns (212, 78, 95).

You won 1000 QAR in pieces of 1 QAR and you want to give them in equal parts to your three friends. How many QAR per person can you give?

Write the function `fairSharing(items, people)` that takes as input the number of available items (e.g., 10 QAR notes) and the number of people to share the item equally. The function returns how many items are given to a single person.

It's 10:00 (am/pm doesn't matter). Where will the hour hand be in 7 hours? In practice the hour will be 17, but we are restricted to show 5 since the hour hand only goes up to 12!

Write the function `myWatch(now, next)` that takes as input the current hour, `now` (as an integer) and `next` hours in the future and returns the hour in the future as shown by the hour hand of a clock.