Problem of the Week
Problem B and Solution
Bill O. Coins

Problem
Would you rather have eleven crisp $50 bills, or four stacks of dimes, each as tall as the length of your wingspan, fingertip to fingertip?

Make your choice, and then, using the fact that a dime is approximately 1 mm thick, determine which option is worth more.

Solution
The first option has you take eleven $50 bills, which has value $11 \times $50 = $550.

The second option has you take 4 stacks of dimes, each the same height as your wingspan. The thickness of a dime is 1 mm, so a 10 mm = 1 cm stack is worth $1.00. You can measure your wingspan, or, since wingspan \( \approx \) height, you can just use your height.

Let’s consider two people, Person A of wingspan/height 150 cm and Person B of wingspan/height 130 cm.

Person A

Each stack of height 150 cm has value $150. So four such stacks have value $150 \times 4 \text{ stacks} = $600.

Person B

Each stack of height 130 cm has value $130. So four such stacks have value $130 \times 4 \text{ stacks} = $520.

The ‘break-even’ height is when four stacks of dimes has value $550. So, one stack has value $550 \div 4 = $137.50, which is the value of the dimes if the person’s wingspan/height is 137.5 cm.

Therefore if your wingspan/height is less than 137.5 cm, take the bills; otherwise, you should take the dimes.

For further thought: A Canadian dime is actually 1.22 mm thick. How does this change your answer?