1.9 Extension: Significant figures

Significant figures are the digits in a number that are meaningful for accuracy, as opposed to zeros for place value. See MathIsFun definitions Significant Digits

1. Write down the number of significant digits in each value.

   (a) 8 (c) 60 (e) 105.5

   (b) 27 (d) 120 (f) 1.7320

2. Round each value to three sig figs

   (a) 1,472,654
   (population of the Bronx)

   (c) 8,804,190
   (population of NYC)

   (b) π

   (d) $\sqrt{2}$

3. Do the calculation two ways: round each value to three sig figs before calculating versus round only at the end.

   (a) $39.37^2 - 1510$

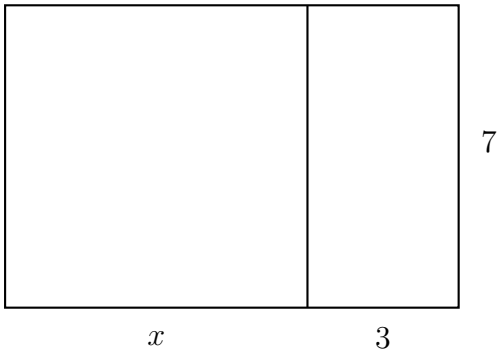
   (c) $39.37^2 - 1510$

   (b) $1.2548^2\pi$

   (d) $1.2548^2\pi$

   What do you notice. In calculations, when should values be rounded?

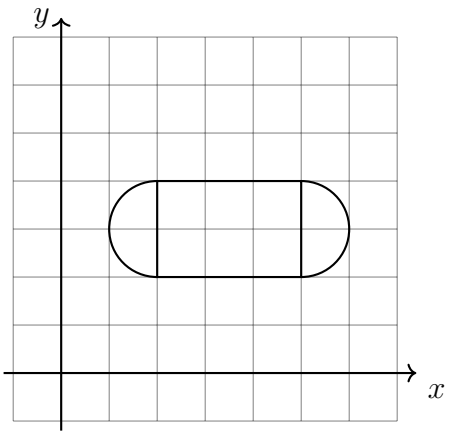
4. A large rectangle is divided by a vertical line into a square and a smaller rectangle, as shown. Its height is 7 and base $x + 3$, as marked.



(a) Find the area of the square.

(b) Find the perimeter of the large rectangle.

5. Find the *area* of the shape shown below composed of a rectangle and two semi-circular caps. Round the result to three sig figs.



6. Given that the distance from the earth to the sun is 94.297 million miles. Find the circumference of the earth's orbit around the sun. (leave your result in scientific notation rounded to three sig figs)