1.8 Extension: Scientific notation

By "scientific notation" we mean in the form $a \times 10^k$ where $1 \leq a < 10$ and k is an integer.

1. Convert each value to scientific notation.

   (a) 5000

   (c) 450

   (b) 12,000

   (d) 1,060,000

2. Expand each value to regular numeric form. (i.e. an integer)

   (a) 9×10^2

   (c) 6.22×10^3

   (b) 1.5×10^5

   (d) 1.41×10^2

3. Calculate each product. Leave in exponential form.

   (a) $10^2 \times 10^2$

   (b) $10^3 \times 10^5$

4. Calculate and write as scientific notation.

   (a) $22.5 \times 14^2 - 700$

   (b) The mean distance of the earth to the moon, 384,000 kilometers.

5. The dimensions of an American football field are 360 feet by 160 feet. Express the area of a football field in square feet in scientific notation.

6. A compound shape composed of two rectangles is shown with dimensions marked, both having heights of 8.5 and with base lengths of 3 and 7 respectively.

8.5

3   7
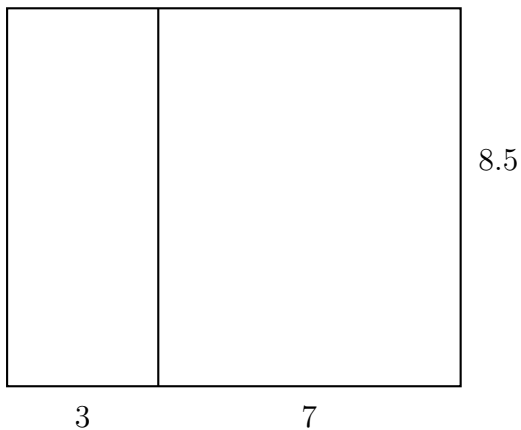
(a) Find the perimeter of the smaller rectangle on the left.

(b) Find the total area of the combined rectangles

7. Given $\overleftrightarrow{PQ}$ as shown on the number line. Divide segment $\overline{PQ}$ into five congruent segments by marking and labeling the points R, S, T, and U on the numberline.

P Q

−4   −3   −2   −1   0   1   2   3   4   5   6
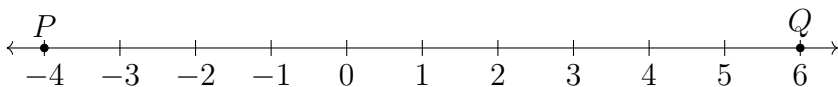
8. Given $\overline{PQR}$, with $PQ = 4x - 4$, $QR = 2x + 3$, and $PR = 5x + 9$. Find PR.

(show the check)