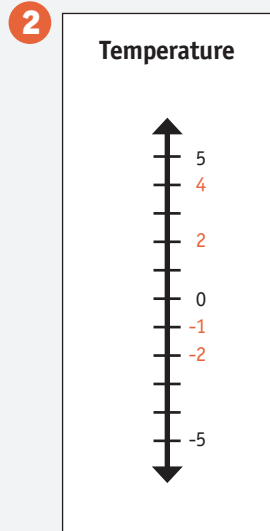
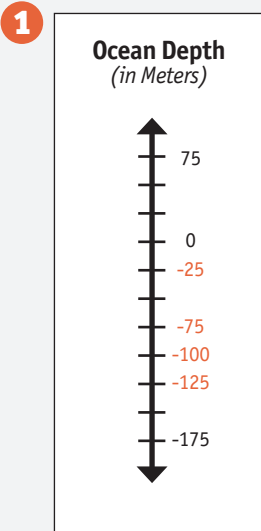


# Answer Key: Diving Into the Number System

## Activity Sheet: Absolute Value and Ordering Rational Numbers "Under the Deep Blue Sea"



**3**

Probe	Bootz	Ice Pop	Mitten	Snowball	Frosty
Depth	-125	-100	-75	-25	0
Absolute Value	125	100	75	25	0

**4**

Probe	Snowball	Frosty	Mitten	Ice Pop	Bootz
Temperature	4	2	0	-1	-2
Absolute Value	4	2	0	1	2

- 5** The research intern is wrong.  $-40$  is lower on the number line than  $-2$ , so  $-40$  is less than  $-2$ .

## Now Try This

- 6** A researcher might want to know the distance needed to travel to retrieve a malfunctioning probe or to extend a cable to a probe. To travel to the probe Bootz, for example, a researcher would travel a distance of 125 meters.

## Activity Sheet: Adding and Subtracting With Negative Numbers "How Low Can You Go?"

- 1** 175 meters [ $-150 - (-325) = 175$ ]
- 2**  $-37^\circ$  [ $-20 + -17 = -37$ ]
- 3** Leonard is incorrect. Rather than subtracting the depth of Regan from the height of Iago, he should have added the distance from Regan's depth to the surface, 495 meters (or the absolute value of  $-495$ ), to the height of Iago.  $725 + 495 = 1,220$  meters.
- 4** The temperature increased by  $3^\circ\text{C}$ . In other words, it got warmer because  $-37$  is greater than  $-40$  [ $-37 - (-40) = 3$ ].
- 5** 370 meters [ $-495 + 125 = -370$ , so Regan is 370 meters below the surface and has to rise 370 meters to reach the surface]

## Activity Sheet: Irrational Numbers "It's OK to Be Irrational!"

- 1** 1.4 kilometers, because  $1^2 + 1^2 = c^2$ , so  $c = \sqrt{2}$ . Rounded to one decimal place,  $\sqrt{2} = 1.4$ . It should be placed just to the left of halfway between 1 and 2 on the number line.
- 2** The circular section has an area of 3.14 square kilometers ( $3.14 \times 1^2$ ). It should be placed just to the right of 3 on the number line.
- 3** 1.7 kilometers, because  $1^2 + x^2 = 2^2$ . Solving for  $x$ , the other side of the rectangle = 1.7 kilometers. It should be placed just to the right of halfway between 1 and 2 on the number line.
- 4** 1,571 cubic meters ( $3.142 \times 10^2 \times 5$ ). The approximation of  $\pi$  to three decimal places (3.142) should be placed just to the right of 3 on the number line.

