
On a real-number line, the coordinates of six points are as follows:

<table>
<thead>
<tr>
<th>Point</th>
<th>Coordinate</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>-3</td>
</tr>
<tr>
<td>P</td>
<td>-1</td>
</tr>
<tr>
<td>L</td>
<td>0</td>
</tr>
<tr>
<td>E</td>
<td>1</td>
</tr>
<tr>
<td>C</td>
<td>3</td>
</tr>
<tr>
<td>S</td>
<td>5</td>
</tr>
</tbody>
</table>

1. If Point P moves left 1, the right 5, and back to -1, how far, in units, did Point P move altogether? (10)

2. What are the combined lengths of A to E and C to P? (8) 4 + 4

3. What segment has the same length as LC? (LA, AL)

For problems 4 and 5, use the figure below.

4. Points R & O lie on FG as shown. The length of FG is 24 units; FO is 14 units long; RG is 18 units long. How many units long, if it can be determined, is RO? (3)

5. Points R & O line on FG as shown. The length of FG is 32 units; FO is 24 units long; RG is 20 units long. How many units long, if it can be determined, is RO? (12)

6. On a real-number line, what is the midpoint of -6 and 14? (4) \( \frac{-6 + 14}{2} = 4 \)

ACT Prep: Part 2. Show sufficient work.

1. AJ’s Rentals charge $120 a day for a truck rental plus $.25 per mile for each mile that the truck is driven. Write an expression for the cost of renting the truck for one day and driving “n” miles.

\[ 120 + .25n \]

2. Write and solve the equation: An integer, \( q \), is added to 4. That sum is then multiplied by 3. This result is 15 more than twice the original integer, \( q \).

\[ 3(q + 4) = 2q + 15 \]

3. If \( x = -3 \), what is the value of \( \frac{x^2 + 1}{x - 1} \)? (\( \frac{-5}{2} \))

4. Fill in the cell so that each row, diagonal, and column are equal.

<table>
<thead>
<tr>
<th>2y</th>
<th>9y</th>
<th>-2y</th>
</tr>
</thead>
<tbody>
<tr>
<td>-1y</td>
<td>3y</td>
<td>?</td>
</tr>
<tr>
<td>8y</td>
<td>-3y</td>
<td>4y</td>
</tr>
</tbody>
</table>

5. The expression \( x(y + z) \) is equivalent to:
   a. \( xy + z \)
   b. \( xy + xz \)
   c. \( xyz \)

6. Express \( z \) in terms of \( x \), if \( x^5 = y \) and \( y^2 = z \).
   d. \( z = x^2 \)
   e. \( z = x^5 \)
   f. \( z = x^{10} \)
Name the following in \( \odot G \).
1. the minor arcs \( \overline{QR}, \overline{PS}, \overline{RU}, \overline{UT}, \overline{QT} \)
2. the major arcs \( \overline{QBT}, \overline{STO}, \overline{TUB} \)
3. the semicircles \( \overline{RST}, \overline{STU}, \overline{KQT}, \overline{SKU} \)

Find the measure of each arc in \( \odot B \).
4. \( \overline{GJ} \) 90°
5. \( \overline{HI} \) 29°
6. \( \overline{HII} \) 180°
7. \( \overline{GJI} \) 241°
8. \( \overline{GH} \) 270°
9. \( \overline{GJH} \) 270°
10. \( \overline{HGI} \) 180°
11. \( \overline{GH} \) 90°
12. \( \overline{GHI} \) 119°

Find the circumference of each circle. Leave your answers in terms of \( \pi \).
13. \( 2\pi (16) \) \( 32\pi \) in
14. \( 2\pi (11) \) \( 22\pi \) m
15. \( 2\pi (6.8) \) \( 13.6\pi \) m

16. The wheels on Reggie’s bike each have a 20-in. diameter. His sister’s mountain bike has wheels that each have a 26-in. diameter. To the nearest inch, how much farther does Reggie’s sister’s bike travel in one revolution than Reggie’s bike?

\[ \frac{2\pi (13)}{2\pi (10)} \approx 19 \text{ in} \]

17. A Ferris wheel has a 50-m radius. How many kilometers will a passenger travel during a ride if the wheel makes 10 revolutions? Round your answer to the nearest tenth of a kilometer.

\[ 10 \cdot 2\pi (5) = 3.1 \text{ m} \]

Find the length of each darkened arc. Leave your answer in terms of \( \pi \).
18.
19.
20.
21.
22.
23.

Find each indicated measure for \( \odot Y \).
24. \( m \angle EYD \) 90°
25. \( m \angle EAB \) 180°
26. \( m \angle DB \) 140°
27. \( m \angle DYC \) 70°
28. \( m \angle EAC \) 250°
29. \( m \angle BDA \) 320°