

Practice with Estimating Square Roots

Part I: Find the two integers the square root is between. Show all work!

<p>1. $\sqrt{23}$</p> $\sqrt{16} < \sqrt{23} < \sqrt{25}$ $4 < \sqrt{23} < 5$ <p>$\sqrt{23}$ is between 4 and 5</p>	<p>2. $\sqrt{78}$</p> $\sqrt{64} < \sqrt{78} < \sqrt{81}$ $8 < \sqrt{78} < 9$ <p>$\sqrt{78}$ is between 8 and 9</p>	<p>3. $\sqrt{145}$</p> $\sqrt{144} < \sqrt{145} < \sqrt{169}$ $12 < \sqrt{145} < 13$ <p>$\sqrt{145}$ is between 12 and 13</p>
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Part II: Find the integer the square root is closest to (nearest whole number). Show all work!

<p>4. $\sqrt{117}$</p> $\sqrt{100} < \sqrt{117} < \sqrt{121}$ $10 < \sqrt{117} < 11$ $\frac{117}{17} = 6 \frac{15}{17}$ $\frac{121}{4} = 30 \frac{1}{4}$ <p>$\sqrt{117}$ is between 10 and 11 and closer to 11</p>	<p>5. $\sqrt{7}$</p> $\sqrt{4} < \sqrt{7} < \sqrt{9}$ $2 < \sqrt{7} < 3$ $\frac{7}{3} = 2 \frac{1}{3}$ $\frac{9}{2} = 4 \frac{1}{2}$ <p>$\sqrt{7}$ is between 2 and 3 and closer to 3</p>	<p>6. $\sqrt{32}$</p> $\sqrt{25} < \sqrt{32} < \sqrt{36}$ $5 < \sqrt{32} < 6$ $\frac{32}{7} = 4 \frac{4}{7}$ $\frac{36}{4} = 9$ <p>$\sqrt{32}$ is between 5 and 6 and closer to 6</p>
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Part III: Approximate each square root to the nearest hundredth. Show all work!

<p>7. $\sqrt{56}$</p> <p>$\sqrt{49} < \sqrt{56} < \sqrt{64}$ $7 < \sqrt{56} < 8$</p> <table style="margin-left: 20px;"> <tr> <td style="text-align: right;">56</td> <td style="text-align: right;">64</td> </tr> <tr> <td style="text-align: right;">-49</td> <td style="text-align: right;">-56</td> </tr> <tr> <td style="text-align: right;">7</td> <td style="text-align: right;">8</td> </tr> </table> <p>$\sqrt{56}$ is between 7 and 8 and closer to 7</p> <p>$\sqrt{56} \approx 7.483314774\dots$</p> <p style="text-align: center;">7.48</p>	56	64	-49	-56	7	8	<p>8. $\sqrt{90}$</p> <p>$\sqrt{81} < \sqrt{90} < \sqrt{100}$ $9 < \sqrt{90} < 10$</p> <table style="margin-left: 20px;"> <tr> <td style="text-align: right;">90</td> <td style="text-align: right;">100</td> </tr> <tr> <td style="text-align: right;">-81</td> <td style="text-align: right;">-90</td> </tr> <tr> <td style="text-align: right;">9</td> <td style="text-align: right;">10</td> </tr> </table> <p>$\sqrt{90}$ is between 9 and 10 and closer to 9.</p> <p>$\sqrt{90} \approx 9.486832981\dots$</p> <p style="text-align: center;">9.49</p>	90	100	-81	-90	9	10	<p>9. $\sqrt{12}$</p> <p>$\sqrt{9} < \sqrt{12} < \sqrt{16}$ $3 < \sqrt{12} < 4$</p> <table style="margin-left: 20px;"> <tr> <td style="text-align: right;">12</td> <td style="text-align: right;">16</td> </tr> <tr> <td style="text-align: right;">-9</td> <td style="text-align: right;">-12</td> </tr> <tr> <td style="text-align: right;">3</td> <td style="text-align: right;">4</td> </tr> </table> <p>$\sqrt{12}$ is between 3 and 4 and closer to 3.</p> <p>$\sqrt{12} \approx 3.464101615\dots$</p> <p style="text-align: center;">3.46</p>	12	16	-9	-12	3	4
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