

## Estimate the square and square root of a number

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| <p>1. Estimate the value of</p> <p>a) <math>32^2</math></p> <p>32 is between 30 and 40<br/> <math>32^2</math> is between <math>30^2</math> and <math>40^2</math><br/> That is, <math>32^2</math> is between 900 and 1600<br/> Thus, <math>32^2 \approx 900</math></p>                                        | <p>b) <math>11.9^2</math></p> <p><math>11.9^2</math> is between 10 and 20<br/> <math>11.9^2</math> is between <math>10^2</math> and <math>20^2</math><br/> That is, <math>11.9^2</math> is between 100 and 400<br/> Thus, <math>11.9^2 \approx 100</math></p>                                               |
| <p>c) <math>8.7^2</math></p> <p><math>8.7^2</math> is between 8 and 9<br/> <math>8.7^2</math> is between <math>8^2</math> and <math>9^2</math><br/> That is, <math>8.7^2</math> is between 64 and 81<br/> Thus, <math>8.7^2 \approx 81</math></p>                                                            | <p>d) <math>(-6.2)^2</math></p> <p><math>(-6.2)^2</math> is between -6 and -7<br/> <math>(-6.2)^2</math> is between <math>(-6)^2</math> and <math>(-7)^2</math><br/> That is, <math>(-6.2)^2</math> is between 36 and 49<br/> Thus, <math>(-6.2)^2 \approx 36</math></p>                                    |
| <p>2. Estimate the value of</p> <p>a) <math>\sqrt{52}</math></p> <p>52 is between perfect squares 49 and 64<br/> <math>\sqrt{52}</math> is between <math>\sqrt{49}</math> and <math>\sqrt{64}</math><br/> That is, <math>\sqrt{52}</math> is between 7 and 8<br/> Thus, <math>\sqrt{52} \approx 7</math></p> | <p>b) <math>\sqrt{21.7}</math></p> <p><math>\sqrt{21.7}</math> is between perfect squares 16 and 25<br/> <math>\sqrt{21.07}</math> is between <math>\sqrt{16}</math> and <math>\sqrt{25}</math><br/> That is, <math>\sqrt{21.7}</math> is between 4 and 5<br/> Thus, <math>\sqrt{21.7} \approx 5</math></p> |
| <p>c) <math>\sqrt{70}</math></p> <p><math>\sqrt{70}</math> is between <math>\sqrt{64}</math> and <math>\sqrt{81}</math><br/> That is, <math>\sqrt{70}</math> is between 8 and 9<br/> Thus, <math>\sqrt{70} \approx 8</math></p>                                                                              | <p>d) <math>\sqrt{111}</math></p> <p><math>\sqrt{111}</math> is between <math>\sqrt{100}</math> and <math>\sqrt{121}</math><br/> That is, <math>\sqrt{111}</math> is between 10 and 11<br/> Thus, <math>\sqrt{111} \approx 10</math></p>                                                                    |