

Square Root Estimations Practice

Approximate the square root to the nearest tenth.

1. $\sqrt{23}$

2. $\sqrt{18}$

3. $\sqrt{90}$

4. $\sqrt{30}$

5. $-\sqrt{21}$

6. $\sqrt{44}$

7. $-\sqrt{58}$

8. $\sqrt{100}$

9. Arib approximated $\sqrt{39}$ to the nearest tenth as 6.3. Below is his reasoning. Is Arib correct in his thinking? Explain why or why not.

$\sqrt{39}$ is approximately 6.3 since $\sqrt{36} = 6$, $\sqrt{49} = 7$ and $6.3 \times 6.3 = 39.69$. There is no reason to check any other approximations since I already have 39 before the decimal.

10. Joanna is building a fence around a pasture for her horse to run in. She knows that a horse needs at least one acre which is 4840 yd^2 . If she wants her pasture to be an exact square, to nearest foot how long should each side of the fence be?

11. Natalia and her friend are performing a physics experiment by dropping a penny off the top of the Sears Tower. They know that the time it takes the penny to hit the ground can be approximated using the formula $t \approx \sqrt{\frac{h}{5}}$ where h is the height the penny is dropped from in meters and t is the amount of time the penny takes to hit the ground. Natalia drops the penny from the top while her friend stands safely to the side on the ground with a stop watch. Natalia will radio over a walkie-talkie as she drops the penny so that her friend on the ground knows when to start the stop watch. To the nearest tenth, estimate what time will be on the stop watch when the penny hits the ground knowing that the Sears Tower is about 440 meters tall?

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ANSWER KEY

Approximate the square root to the nearest tenth.

1. $\sqrt{23}$

≈ 4.8

2. $\sqrt{18}$

≈ 4.2

3. $\sqrt{90}$

≈ 9.5

4. $\sqrt{30}$

≈ 5.5

5. $-\sqrt{21}$

≈ -4.6

6. $\sqrt{44}$

≈ 6.6

7. $-\sqrt{58}$

≈ -7.6

8. $\sqrt{100}$

$= 10.0$

9. Arib approximated $\sqrt{39}$ to the nearest tenth as 6.3. Below is his reasoning. Is Arib correct in his thinking? Explain why or why not.

$\sqrt{39}$ is approximately 6.3 since $\sqrt{36} = 6$, $\sqrt{49} = 7$ and $6.3 \times 6.3 = 39.69$. There is no reason to check any other approximations since I already have 39 before the decimal.

Since 39.69 is higher than 39, Arib should have checked 6.2 which is lower than 39 but a better approximation.

10. Joanna is building a fence around a pasture for her horse to run in. She knows that a horse needs at least one acre which is 4840 yd^2 . If she wants her pasture to be an exact square, to nearest foot how long should each side of the fence be?

At least $\sqrt{4840} \approx 70 \text{ yd}$.

11. Natalia and her friend are performing a physics experiment by dropping a penny off the top of the Sears Tower. They know that the time it takes the penny to hit the ground can be approximated using the formula $t \approx \sqrt{\frac{h}{5}}$ where h is the height the penny is dropped from in meters and t is the amount of time the penny takes to hit the ground. Natalia drops the penny from the top while her friend stands safely to the side on the ground with a stop watch. Natalia will radio over a walkie-talkie as she drops the penny so that her friend on the ground knows when to start the stop watch. To the nearest tenth, estimate what time will be on the stop watch when the penny hits the ground knowing that the Sears Tower is about 440 meters tall?

$\sqrt{88} \approx 9.4 \text{ sec}$