



GRADE 8 · THE NUMBER SYSTEM · HOMEWORK

LOCATING IRRATIONAL NUMBERS

Today's goal: I can use rational approximations of irrational numbers to compare their size and locate them approximately on a number line diagram.



Pick your peppers!

Everyone does Mild & Medium. Then climb as high as you can.



Mild

Tan the Turtle



Medium

Digit the Fox



Spicy

Blaze the Dragon

WATCH MR DJ SOLVE

Bracket $\sqrt{5}$ and $\sqrt{99}$.

1 $4 < 5 < 9$.

2 $81 < 99 < 100$ — $\sqrt{99}$ is only just below 10.

Answer: $2 < \sqrt{5} < 3$ and $9 < \sqrt{99} < 10$



REMEMBER $25 < 30 < 36$, so $5 < \sqrt{30} < 6$. To compare two numbers, square both.



FAMILY CORNER

No need to remember this math yourself! Ask your student to teach you Mr DJ's example, then try the first Mild problem together.



MILD

Tan the Turtle: Slow and steady. Warm up!

1 Bracket $\sqrt{70}$ between consecutive whole numbers.

Answer



OOPS ALERT

Careful on #1! Blaze spotted the slip Mr DJ sees most: Halved to 35 and 36.



MEDIUM

Digit the Fox: Stretch your brain.

- 2 Which is bigger, 3.5 or $\sqrt{13}$? Show your working.

Answer

- 3 Is $\sqrt{70}$ nearer 8 or nearer 9? Justify it.

Answer

- 4 $\sqrt{n}$ lies between 4 and 5. Give three possible values of n .

Answer

- 5 Place $\sqrt{3}$, 2 and $\sqrt{6}$ in order, smallest first.

Answer



SPICY

Blaze the Dragon: Bring the heat!

- 6 Explain the first thing you should do when asked to locate $\sqrt{n}$ on a number line.

Answer

- 7 Sam says $\sqrt{99}$ is almost 50. What has he done, and what is the real answer?

Answer



How did this sheet feel?

☐

Easy for me

☐

Just right

☐

Made me think

Stuck? Watch Mr DJ explain it

"Simplifying Square Roots — Step by Step Guide" on YouTube:
[youtube.com/@MathWithMrDJ](https://www.youtube.com/@MathWithMrDJ)

Brain break: daily puzzles

Three new math puzzles every day, free:
puzzles.mathwithmrdj.com