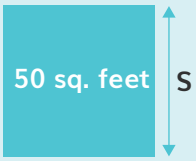
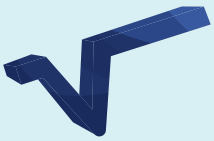
Learning Outcome:
Estimate value of the irrational number square root (till tenths), compare with other numbers and plot the number on the number line.
8.NS.A.2

If you could design most of an airport by yourself, then you can probably design anything. Let's recall the concepts you used and answer these questions.

1 Area of a square box is 50 sq. feet. Calculate the length of its side.



S = 5 $\sqrt{2}$ feet



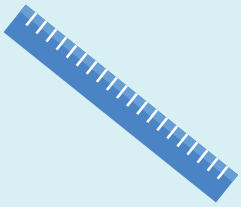
2 $\frac{51}{52}$ is an irrational number. (True/False)

True

$\frac{51}{52} = \frac{p}{q}$ rational no.

3 Classify the following into rational and irrational numbers.
$\sqrt{4}$, $\sqrt{2}$, $\sqrt{36}$, and $\sqrt{32}$

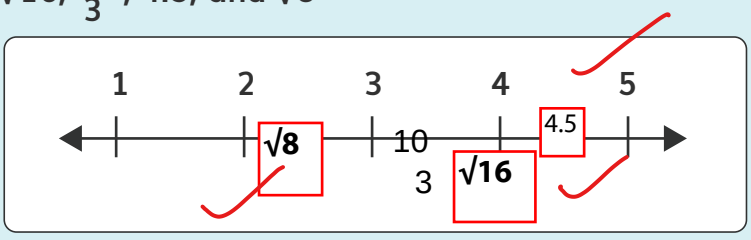
Rational Numbers	$\sqrt{36}$ $\sqrt{4}$
Irrational Numbers	$\sqrt{2}$ $\sqrt{32}$

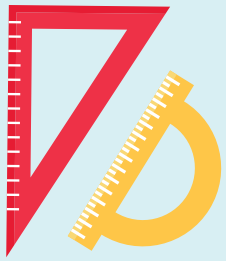


4 Compare $\sqrt{17}$ and 5. (>, <, =)

$\sqrt{17}$ < 5

5 Place the following on the number line.
$\sqrt{16}$, $\frac{10}{3}$, 4.5, and $\sqrt{8}$





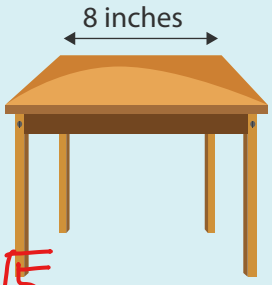
6 Fill in the blanks.

$2\sqrt{5} + 3$ is an irrational number.

a. a rational b. an irrational c. a whole d. a natural

Learning Outcome:
Estimate value of the irrational number square root (till tenths), compare with other numbers and plot the number on the number line.
8.NS.A.2

1 Amy wanted to buy a square tablecloth which is slightly bigger than her square table. She is provided with two options by the store clerk, cloth 1 has an area of $64\sqrt{2}$ sq. inches, and cloth 2 has an area of $32\sqrt{5}$ sq. inches. Which one should she buy such that not a lot of cloth is hanging down?

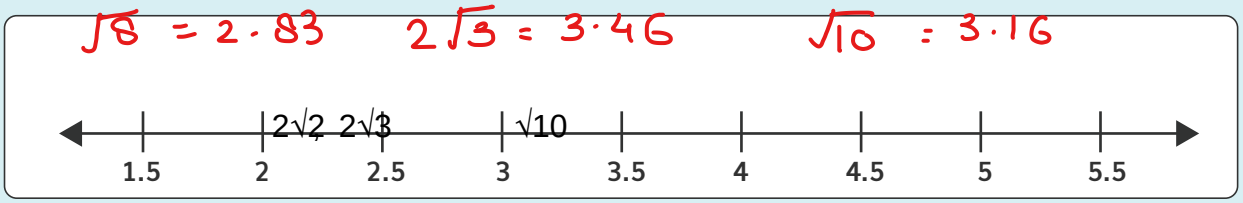


Area of table = 8 × 8 = 64 in²
cloth 1 = $64\sqrt{2}$ = 90.5
cloth 2 = 71.55 ← Correct Ans cloth 2 = $32\sqrt{5}$

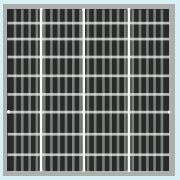
$64\sqrt{2}$

2 Grandpa bought a bag of food to feed the birds at the gram. He fed $\sqrt{8}$ grams of food to ducklings, $2\sqrt{3}$ grams to seagulls, and $\sqrt{10}$ grams to swans. Plot the amount of food consumed by the birds on the number line. Which bird consumed the most?

$\sqrt{8}$ = 2.83 $2\sqrt{3}$ = 3.46 $\sqrt{10}$ = 3.16



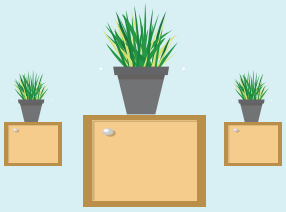
3 You are installing solar panels outside the airport to store solar energy. If the area of each square-shaped solar panel is 351 sq. feet, what is the length of its side?



s = 45.89

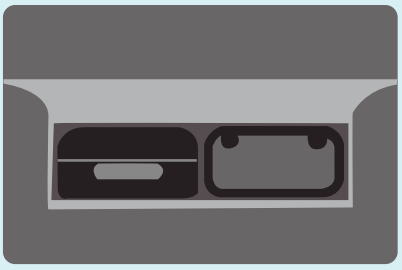
$s^2 = 351$
$s = \sqrt{351}$
48.89
S = 18.73

4 The area occupied by each indoor plant, used to decorate the airport, is $\sqrt{32}$ sq. feet. Is it a rational or an irrational number?



irrational ✓

5 The length and the width of the overhead bin (for cabin baggage) is $\sqrt{242}$ and $\sqrt{162}$ inches, respectively. You have a square suitcase whose length is 12 inches. Will you be able to fit it inside the cabin?



yes ✓

6 An apple pie of $2.\overline{3}$ kilograms serves 6 people. If you could increase the weight by an additional $\sqrt{7}$ kilograms, it could be served to 10 people. Express the total increased weight in its decimal form. Is it a rational or an irrational number?

Increased weight  = $\sqrt{7}$ = 2.6457... irrational

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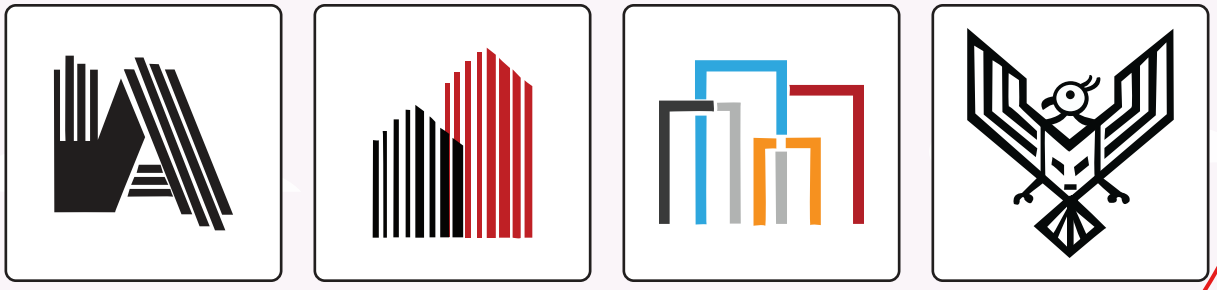
8.NS.A.2

The airport needs a logo. You ask Dahlia what would be a unique design and she suggests that you follow the theme of square roots. She also gives you a few design guidelines.

Design a logo for your airport that satisfies the following conditions:

- The logo must have straight lines with lengths that are square roots of prime numbers (approx.).
- It must have at least one closed figure.
- Use at least two colors.
- Use a ruler to draw the approximate lengths of square roots.
- Also, add a tagline that connects the logo with the airport.

She also provides you with some sample logos to draw inspiration from.



Draw logo on a paper while following the instructions

lines drawn for the logo should be of length

$\sqrt{2} = 1.41\ldots$

$\sqrt{3} = 1.73\ldots$

$\sqrt{5} = 2.23\ldots$

$\sqrt{7} = 2.64\ldots$

$\sqrt{11} = 3.31\ldots$

$\sqrt{13} = 3.60\ldots$