11-21-18

Aim: SWBAT identify the two consecutive whole numbers between which the square root of a non-perfect square lies and round the answer to the nearest whole number.

$x \div 7$

$\frac{x}{7} = \frac{1}{7}x$

HW: Packet Pages 7 - 8

Quiz next week

Do Now: Packet Page 5

HOMEWORK – SQUARES/PERFECT SQUARES & CUBES/PERFECT CUBES

List the first 15 PERFECT SQUARES.

1, 4, 9, 16, 25, 36, 49, 64,
81, 100, 121, 144, 169, 196, 225

List the first 10 PERFECT CUBES.

1, 8, 27, 64, 125, 216, 343, 512,
729, 1000

Evaluate.

1) $\sqrt{36}$ = 6
2) $-\sqrt{196}$ = -14
3) $\pm\sqrt{225}$ = ±15
4) $-\sqrt{4}$ = -2
5) $\sqrt[3]{343}$ = 7
6) $\sqrt[3]{-125}$ = -5
7) $\sqrt[3]{216}$ = 6
8) $\sqrt[3]{-27}$ = -3

SQUARE each number.

9) 7 49
10) -5 25
11) 8 64
12) 15 225

CUBE each number.

13) 7 343
14) -5 -125
15) 8 512
16) -10 1000

17) Rational #'s are numbers that CAN be written as a fraction. This would include terminating decimals and repeating decimals.

18) Irrational #'s are numbers that CANNOT be written as a fraction. This would include non-terminating and non-repeating decimals.

Decide if each number is RATIONAL or IRRATIONAL.

19) $\sqrt{144}$ Rational
20) $\sqrt[3]{1000}$ Rational
21) $\sqrt{200}$ Irrational
22) $-\sqrt{1}$ Rational
23) $\sqrt{12}$ Irrational
24) $\sqrt[3]{15}$ Irrational
25) $\sqrt[3]{-27}$ Rational
26) $\sqrt{400}$ Rational

(20 x 20)

AIM: SWBAT identify the two consecutive whole numbers between which the square root of a non-perfect square lies AND round the answer to the nearest whole number.

DO NOW:

State whether the following numbers are RATIONAL or IRRATIONAL.

1) 2.1565656… $2.1\overline{56}$ Rational

2) −12 Rational

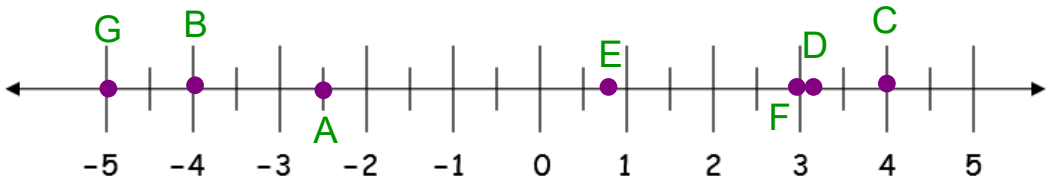
3) $\sqrt{25}$ Rational

4) 6.4851674… Irrational

5) List the first 15 perfect squares.

1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144, 169, 196, 225

6) Use the number line below to graph the following: A: -2.5, B: $-\sqrt{16}$, C: $\sqrt{16}$, D: π, E: $\frac{4}{5}$, F: $\sqrt[3]{27}$, G: $\sqrt[3]{-125}$



Notes.

Consider taking the "square root of 5" $\sqrt{5}$.

Can you think of a number, multiplied by itself that will equal 5? No

Since $2^2 = 4$ and $3^2 = 9$, the answer must be a number in-between 2 and 3.

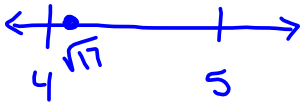
$\sqrt{5}$ = 2.236067977499789696….

You will notice that the square root of a non-perfect square will **ALWAYS** be an **IRRATIONAL NUMBER** (a non-terminating, non-repeating decimal) so we will have to round our answers.

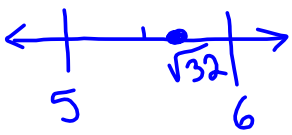
$\sqrt{5} \approx 2$ ($\approx$ means approximate)

State the two consecutive whole numbers between which the square root lies.

1) $\sqrt{16}$ $\sqrt{17}$ $\sqrt{25}$ 4 & 5



2) $\sqrt{25}$ $\sqrt{32}$ $\sqrt{36}$ 5 & 6



3) $\sqrt{36}$ $\sqrt{44}$ $\sqrt{49}$ 6 & 7

4) $\sqrt{81}$ $\sqrt{95}$ $\sqrt{100}$ 9 & 10

Find the SQUARE ROOT of each; round your answers to the nearest whole number.

5) $\sqrt{17}$ 4.1231... ≈ 4

6) $\sqrt{32}$ 5.6568... ≈ 6

7) $\sqrt{44}$ 6.6332 ... ≈ 7

8) $\sqrt{95}$ 9.7467... ≈ 10

SQUARE each number.

9) 12 144

10) 50 2500

11) 25 625

12) -20 400

State the two consecutive whole numbers between which the square root lies.

13) $\sqrt{52}$ 7 & 8

14) $\sqrt{11}$ 3 & 4

15) $\sqrt{83}$ 9 & 10

16) $\sqrt{107}$ 10 & 11

Using a calculator

Find each square root. Round non-perfect squares to the nearest integer.

17) $\sqrt{22}$ ≈ 5

18) $-\sqrt{172}$ ≈ -13

19) $\sqrt{48}$ ≈ 7

20) $\sqrt{65}$ ≈ 8

21) $-\sqrt{18}$ ≈ -4

22) $\sqrt{121}$ = 11

23) State the problem numbers (#17–22) that are **PERFECT SQUARES**.

22

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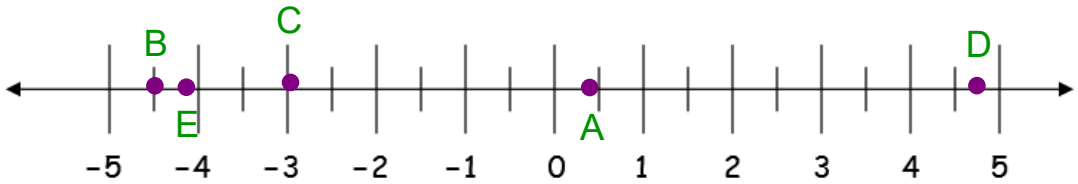
24) Use the number line below to graph the following: A $\frac{2}{5}$, B $-4\frac{1}{2}$, C $-\sqrt{9}$, D $\sqrt{23}$, E $-\sqrt{18}$,



$\sqrt{16}$ $\sqrt{18}$ $\sqrt{25}$

between 4 and 5
closer to 4

$\sqrt{16}$ $\sqrt{23}$ $\sqrt{25}$

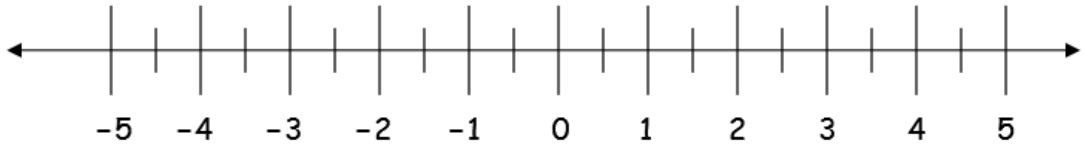
between 4 and 5
closer to 5

Homework – Square Roots: Rational or Irrational

- Step 1 – Decide if the number is a "Perfect Square." Answer yes or no.
- Step 2 – State whether the square root is Rational or Irrational.
- Step 3 – If the square root is Irrational then name the two consecutive whole numbers that the non-perfect square root lies between.
- Step 4 – Round the answer to the nearest whole number.

	-Step 1-	-Step 2-	-Step 3-	-Step 4-
	Perfect Square? Yes or No	Rational or Irrational	2 Consecutive Whole Numbers it Lies Between	Rounded answer to the nearest whole number
EX: $\sqrt{8}$	No	Irrational	2 and 3	3
1) $\sqrt{5}$				
2) $\sqrt{21}$				
3) $\sqrt{35}$				
4) $\sqrt{49}$				
5) $\sqrt{75}$				
6) $\sqrt{89}$				
7) $\sqrt{144}$				
8) $\sqrt{162}$				
9) $\sqrt{196}$				
10) $\sqrt{200}$				
11) $\sqrt{40}$				
12) $\sqrt{400}$				

13) Use the number line below to graph the following: $-\pi$, $-2\frac{4}{8}$, 2.3, $-\sqrt{16}$, $\sqrt{17}$, $\sqrt[3]{125}$



State whether the following numbers are RATIONAL or IRRATIONAL.

14) π _____

15) $0.\overline{3}$ _____

16) $\sqrt{64}$ _____

17) 0.242242224... _____

18) 2.17 _____

19) $\sqrt{21}$ _____

20) 24 _____

21) $-2\frac{1}{3}$ _____

22) $\sqrt{100}$ _____

23) $\sqrt[3]{8}$ _____

24) $-\sqrt{4}$ _____

25) $\sqrt[3]{-729}$ _____

Evaluate.

26) $\sqrt{225}$ = _____

27) $-\sqrt{64}$ = _____

28) $\pm\sqrt{1}$ = _____

29) $-\sqrt{9}$ = _____

30) $\sqrt[3]{-343}$ = _____

31) $\sqrt[3]{125}$ = _____

32) $\sqrt[3]{64}$ = _____

33) $\sqrt[3]{27}$ = _____