

P.S. #11.1 - Rational vs. Irrational and Simplifying Radicals

Name: _____ Class: _____

For 1 – 6, determine whether the numbers are rational or irrational. Explain your reasoning.

1.) 21

2.) $-22/3$

3.) 1.5

4.) $-3.14159\dots$

5.) $\sqrt{45}$

6.) 0

7.) Which statement is true?

(A) $\sqrt{23}$ is between 5 and 6

(B) $\sqrt{28}$ is less than 5

(C) $-\sqrt{12}$ is between -2 and -3

(D) $-\sqrt{17}$ is less than -4

8.) Which number is **not** irrational?

(A) 0.2121121112...

(B) 0.25

(C) π

(D) $\sqrt{11}$

9.) Which number is **not** rational?

(A) $0.\overline{37}$

(B) 3.14159...

(C) $\sqrt{49}$

(D) 3.14

10.) Which number is irrational?

(A) $-\sqrt{12}$

(B) $2.\overline{453}$

(C) $-\sqrt{144}$

(D) $\frac{3}{8}$

11.) Which number is located between 7 and 8 on the number line?

(A) $\sqrt{39}$

(B) $\sqrt{48}$

(C) $\sqrt{57}$

(D) $\sqrt{65}$

12.) Which number is greater than $\sqrt{20}$?

(A) $\sqrt{15}$

(B) 4.2

(C) $\sqrt{\frac{25}{4}}$

(D) $\frac{5}{2}\sqrt{\frac{100}{25}}$

Simplify the following radicals.

13.) $\sqrt{75}$

14.) $\sqrt{16}$

15.) $3\sqrt{36}$

16.) $\sqrt{50}$

17.) $\sqrt{80}$

18.) $\sqrt{30}$

19.) $-5\sqrt{8}$

20.) $\sqrt{18}$

21.) $\sqrt{32}$

22.) $7\sqrt{12}$

23.) $\sqrt{8}$

24.) $\sqrt{108}$

25.) $\sqrt{125}$

26.) $11\sqrt{27}$

27.) $4\sqrt{175}$

28.) $\sqrt{28}$

29.) $\sqrt{45}$

30.) $-7\sqrt{72}$

31.) $-20\sqrt{20}$

32.) $-15\sqrt{150}$