Classify the following numbers as rational or irrational.

1. ½ _____ 2. 8 _____ 3. $\sqrt{6}$ _____ 4. $\sqrt{16}$ _____ 5. π _____

Classify the following numbers as rational, irrational, natural, whole and/or integer. (A number may belong to more than one set)

6. –3 _____ 7. $4\frac{2}{3}$ _____ 8. $\sqrt{3}$ _____ 9. 0 _____

Determine if each is True or False.

_____ 10. All whole numbers are rational numbers.

_____ 11. All integers are irrational numbers.

_____ 12. All natural numbers are integers.

For each of the numbers determine whether it is rational or irrational. Explain your reasoning in detail.

Rational or Irrational:	Detailed reason why:
13. 5	
14. $(5 + \sqrt{5})(5 - \sqrt{5})$	
15. 0.575	
16. $\sqrt{5}$	
17. $5 + \sqrt{7}$	
18. $\frac{\sqrt{10}}{2}$	
19. $5.\overline{75}$	
20. $\frac{5}{7}$	
21. $(7 + \sqrt{5})(5 - \sqrt{5})$	

In the right-hand column, write whether you agree or disagree with each student's statement.

22. Leejay says, "$0.\overline{57}$ is an irrational number."

23. McKenzie says, "No, Leejay, it is rational because $0.\overline{57}$ can be written as a fraction."

24. Admad says "Maybe McKenzie's correct, you know. Because $0.\overline{57} = \frac{57}{100}$."

25. Lizbeth says, "Hang on. The decimal for $0.\overline{57}$ would go forever if you tried to write. That's what the bar thing means, right?"

26. Treston says, "And because it goes on forever, that proves $0.\overline{57}$ has got to be irrational."

1.1 Answers

1 rational 2 rational 3 irrational 4 rational 5 irrational 6 integer, rational 7 rational 8 irrational
9 whole, integer, rational 10 True 11 False 12 True 13 rational; *Explanation may vary* 14
irrational; *Explanation may vary* 15 rational; *Explanation may vary* 16 irrational; *Explanation may vary* 17 irrational; *Explanation may vary* 18 irrational; *Explanation may vary* 19 rational;
Explanation may vary 20 rational; *Explanation may* 21 irrational; *Explanation may vary* 22 Disagree
23 Agree 24 Agree 25 Agree 26 Disagree