Answer the following questions. If a justification is being asked, be as specific as possible.

1. Explain the difference between a rational and an irrational number.

Classify the following numbers as rational or irrational.

2. ½ _____ 3. 8 _____ 4. $\sqrt{6}$ _____

5. $\sqrt{16}$ _____ 6. π _____

7. List the set of all natural numbers.

8. List the set of whole numbers less than 4.

9. List the set of integers such that $-3 < x < 5$.

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

10. -3 _____ 11. $4\dfrac{2}{3}$ _____ 12. $\sqrt{3}$ _____

13. 0 _____

14. Using the following set of numbers: $A = \left\{\sqrt{3.6},\ 0.36,\ -\dfrac{3}{6},\ 0.3\overline{6},\ 0,\ 3^6,\ -3,\ \sqrt{36},\ 3.63363336\ldots\ \right\}$,

place each element in the appropriate subset. (Numbers may belong to more than one subset)

rational numbers_____ irrational numbers_____

natural numbers_____ whole numbers_____

integers_____

Determine if each is True or False.

_____ 15. All whole numbers are rational numbers.

_____ 16. All integers are irrational numbers.

_____ 17. All natural numbers are integers.

Answer the following questions. If a justification is being asked, be as specific as possible.

1. Explain the difference between a rational and an irrational number.

> A rational number can be expressed as the ratio of two integers. An irrational number is any real number that is not rational.

Classify the following numbers as rational or irrational.

2. ½   Rational   3. 8 Rational   4. $\sqrt{6}$ Irrational
5. $\sqrt{16}$ Rational   6. π Irrational

7. List the set of all natural numbers. {1, 2, 3...}

8. List the set of whole numbers less than 4.   *{0, 1, 2, 3}*

9. List the set of integers such that −3 < x < 5.   *{-2, -1, 0, 1, 2, 3, 4}*

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

10. −3 Rational, Integer   11. $4\dfrac{2}{3}$ Rational   12. $\sqrt{3}$ Irrational

13. 0   Rational, Integer, Whole Number

14. Using the following set of numbers: $A = \left\{ \sqrt{3.6},\ 0.36, -\dfrac{3}{6},\ 0.3\overline{6},\ 0,\ 3^6,\ -3,\ \sqrt{36},\ 3.63363336\ldots \right\}$, place each element in the appropriate subset. (Numbers may belong to more than one subset)

rational numbers $\left\{ \sqrt{3.6},\ 0.36, -\dfrac{3}{6},\ 0.3\overline{6},\ 0,\ 3^6,\ -3,\ \sqrt{36} \right\}$ irrational numbers *3.63363336*

natural numbers $\sqrt{36}, 3^6$ whole number *0,* $\sqrt{36}, 3^6$

integers *-3, 0,* $\sqrt{36}, 3^6$

Determine if each is True or False.

True 15. All whole numbers are rational numbers.

False 16. All integers are irrational numbers.

True 17. All natural numbers are integers.