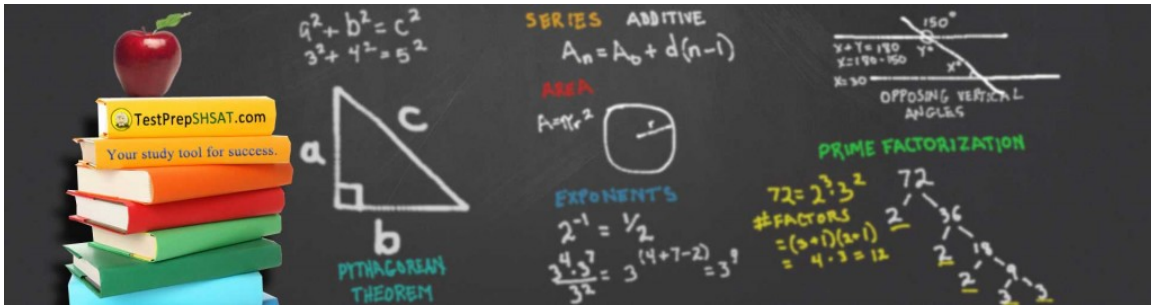


Name:

Date:



(Identify the following as Rational or Irrational)

WORKSHEET :



Rational Numbers

- | | | | |
|-----|------------------|---------------------------------------|---|
| 1. | $6\pi =$ | $42 =$ | $37.33333... =$ |
| 2. | $2.363636... =$ | $\sqrt{101} =$ | $\sqrt{2} =$ |
| 3. | $\sqrt{3} =$ | ϕ (golden ratio)
$1.618... =$ | $98/16 =$ |
| 4. | $1/\sqrt{5} =$ | $1.44444... =$ | $\sqrt{324} =$ |
| 5. | $\sqrt{97} =$ | $\sqrt{3^2} =$ | $\sqrt{3} \times \sqrt{27} =$ |
| 6. | $1/2.2 =$ | $3.3 =$ | 0.314 |
| 7. | $0.454545... =$ | $\sqrt{2}/2 =$ | $\sqrt{10^2} =$ |
| 8. | $\sqrt[3]{11} =$ | $144\pi/13\pi =$ | $\sqrt{32} =$ |
| 9. | $3\sqrt{3}$ | $\sqrt{3} - \sqrt{3} =$ | $\sqrt{3} \times \sqrt{5} \times \sqrt{15} =$ |
| 10. | $3.141414.....$ | $3.14159... =$ | $22/7 =$ |

ANSWERS :



Rational Numbers

1.	$6\pi = \text{Irrational}$	$42 = \text{Rational}$	$37.33333... = \text{Rational}$
2.	$2.363636... = \text{Rational}$	$\sqrt{101} = \text{Irrational}$	$\sqrt{2} = \text{Irrational}$
3.	$\sqrt{3} = \text{Irrational}$	ϕ (golden ratio) $1.618... = \text{Irrational}$	$98/16 = \text{Rational}$
4.	$1/\sqrt{5} = \text{Irrational}$	$1.44444... = \text{Rational}$	$\sqrt{324} = \text{Rational}$
5.	$\sqrt{97} = \text{Irrational}$	$\sqrt{3^2} = \text{Rational}$	$\sqrt{3} \times \sqrt{27} = \text{Rational}$
6.	$1/2.2 = \text{Rational}$	$3.3 = \text{Rational}$	$0.314 = \text{Rational}$
7.	$0.454545... = \text{Rational}$	$\sqrt{2}/2 = \text{Irrational}$	$\sqrt{10^2} = \text{Rational}$
8.	$\sqrt[3]{11} = \text{Irrational}$	$144\pi/13\pi =$	$\sqrt{32} = \text{Irrational}$
9.	$3\sqrt{3} = \text{Irrational}$	$\sqrt{3} - \sqrt{3} = \text{Rational}$	$\sqrt{3} \times \sqrt{5} \times \sqrt{15} = \text{Rational}$
10.	$3.141414..... = \text{Rational}$	$\pi = \text{Irrational}$	$22/7 = \text{Rational}$

KEY CONCEPTS:

Rational Numbers -

- a. Any number of the form a/b where a and b are integers e.g. $4/3$
- b. Repeating decimals and finite decimals e.g. $0.33333\dots$
- c. Integers
- d. Sum, product, difference or quotient of rational numbers e.g. $4.3 \times 0.3333\dots$
- e. Square roots of integers that are perfect squares e.g. $\sqrt{81}$
- f. Certain combinations of irrationals can make a rational e.g. $\sqrt{3} \times \sqrt{27}$

Irrational Numbers -

- a. Any number NOT of the form a/b where a and b are integers
- b. π , Φ , e
- c. Any sum, product, difference or quotient of a rational and irrational number
e.g. 6π or $3\sqrt{2}$
- d. Square roots of any integer that is not a perfect square e.g. $\sqrt{11}$