

### Rational vs. Irrational Worksheet

Directions: Tell whether each number is rational or irrational.

1. 0.36     Rational	2. 0.36363636363636...     Rational $0.\overline{36}$
3. $0.\overline{36}$ Rational	4. 0.3633363336... Rational $0.3\overline{6333}$
5. $\sqrt{8}$ Irrational	6. $10\pi$ Irrational
7. 0.12131415... Irrational	8. $\sqrt{16} = 4$ Rational
9. 0.989989998... Irrational	10. 0.725 Rational
11. $\sqrt{121}$ Rational	12. $\pi + 30$ Irrational
13. -5.28 Rational	14. 0.14141414... Rational
15. $-\sqrt{5}$ Irrational	16. $-\pi$ Irrational
17. $\sqrt{48}$ Irrational	18. $\sqrt{49}$ Rational
19. $0.24\overline{682}$ Rational	20. $\pi - 2$ Irrational

Name \_\_\_\_\_

**Simplify the square roots.**

$$\sqrt{25} = 5 \text{ (because } 5 \cdot 5 = 25\text{)}$$

**Simplify the square roots.**

1.  $\sqrt{9} = 3$

2.  $\sqrt{36} = 6$

3.  $\sqrt{81} = 9$

4.  $\sqrt{169} = 13$

5.  $\sqrt{64} = 8$

6.  $\sqrt{121} = 11$

7.  $\sqrt{49} = 7$

8.  $\sqrt{100} = 10$

9.  $\sqrt{16} = 4$

10.  $\sqrt{225} = 15$

**Estimate to the nearest integer.**

$$\sqrt{34} \approx 6, \text{ because } \sqrt{34} \text{ is closest to } \sqrt{36} \text{ and } \sqrt{36} = 6$$

**Estimate to the nearest integer. Which integer is the closest to the square root?**

11.  $\sqrt{18} \approx 4$   
 $\sqrt{16} < \sqrt{18} < \sqrt{25}$   
 $4 < \sqrt{18} < 5$

12.  $\sqrt{62} \approx 8$   
 $\sqrt{49} < \sqrt{62} < \sqrt{64}$   
 $7 < \sqrt{62} < 8$

13.  $\sqrt{24} \approx 5$   
 $\sqrt{16} < \sqrt{24} < \sqrt{25}$

14.  $\sqrt{78} \approx 9$   
 $\sqrt{64} < \sqrt{78} < \sqrt{81}$   
 $8 < \sqrt{78} < 9$

15.  $\sqrt{50} \approx 7$   
 $\sqrt{49} < \sqrt{50} < \sqrt{64}$   
 $7 < \sqrt{50} < 8$

16.  $\sqrt{98} \approx 10$   
 $\sqrt{81} < \sqrt{98} < \sqrt{100}$   
 $9 < \sqrt{98} < 10$

17.  $\sqrt{8} \approx 3$   
 $\sqrt{4} < \sqrt{8} < \sqrt{9}$   
 $2 < \sqrt{8} < 3$

18.  $\sqrt{46} \approx 7$   
 $\sqrt{36} < \sqrt{46} < \sqrt{49}$   
 $6 < \sqrt{46} < 7$