

## Classifying Numbers and Simplifying Radicals

**Name the set or sets to which each number belongs to the Real Number System.**

1)  $\sqrt{17}$

2)  $-11$

3)  $\sqrt{98}$

4)  $-4$

5)  $\frac{2}{3}$

6)  $0$

7) Give two examples of numbers that could be found in the subset of Rational numbers.

8) Give two examples of numbers that could be found in the subset of Whole numbers.

**Simplify the radical expression.**

9)  $\sqrt{45}$

10)  $\sqrt{75}$

11)  $\sqrt{100}$

12)  $\sqrt{192}$

13)  $\sqrt[3]{27}$

14)  $\sqrt{175p}$

15)  $\sqrt{216n^2}$

16)  $\sqrt{50v^3}$

17)  $\sqrt[3]{288n}$

18)  $\sqrt{32n^3}$

19)  $\sqrt[4]{112x^2}$

20)  $-6\sqrt{448x^3}$

21)  $-6\sqrt[3]{96n^6}$

22)  $-4\sqrt{108x}$

23)  $-4\sqrt{75x^2y^3}$

24)  $5\sqrt{252x^2y^4}$

25)  $6\sqrt{175a^3b}$

26)  $4\sqrt{64x^3y}$

27)  $5\sqrt[3]{108p^3}$

28)  $3\sqrt[4]{72a^4}$

29)  $-2\sqrt[3]{216x^4}$

30)  $7\sqrt[5]{486n^7}$

31)  $8\sqrt[3]{12x^5y^3}$

32)  $2\sqrt[3]{392x^4}$

**Is the sum of the following rational or irrational?**

33)  $\frac{56}{7} + \sqrt{45}$

34)  $\sqrt{576} + \frac{32}{2}$

**Is the product of the following rational or irrational?**

35)  $\sqrt{83} \cdot \frac{32}{2}$

36)  $\frac{61}{4} \cdot \sqrt{90}$