Operations Meanings and Real Numbers B3 (Key)

Name the sets of real numbers to which each of the following numbers belongs.

1. -7 R,Q,Z
2. $\frac{10}{13}$
3. 2.716492... R,I
4. $\sqrt{15}$
5. 7.23 R, Q
6. $\sqrt{49}$
7. 4 R,Q,Z,W,N
8. 8.975
9. $\sqrt{-16}$ Not Real
10. 0

Perform the indicated operations, and state the sets of real numbers to which the answer belongs.

11) 16 + 9 = 25
R,Q,Z,W,N

12) 12 + (-19) = -7

13) .4 × 15 = 6
R,Q,Z,W,N

14) 8(-.125) = -1

15) -12 ÷ (-9) = -4/3
R, Q

16) $\sqrt{36}$ = 6

17) $\sqrt{20}$
R,I

18) $\sqrt{-9}$

19) $\sqrt[3]{64}$ = 4
R,Q,Z,W,N

20) $\sqrt[3]{-27}$ = -3

Explain the meaning of the following operations.

21) 17 − 6 – A group of 6 taken from a group of 17.

22) 11 × 4 –

23) 7^5 – 5 groups of 7 multiplied together.

24) 20 ÷ 5 –

25) Why is 20 ÷ 5 defined? – 4 groups of 5 add to 20. Set answer.

26) Why is 13 ÷ 0 undefined? –

27) Why is 0 ÷ 0 undefined? – Any number of sets of zero adds to zero. No set answer.

State the property of real numbers illustrated in each problem.

28) k(1) = k

29) g + (-g) = 0
Additive inverse

30) 7(b · 4) = (7 · b)4

31) t + z = z + t
Commutative Prop (+)

32) 7(b + c) = 7(b) + 7(c)

33) (z/5)(5/z) = 1
Multiplicative inverse

34) 4(d) = d(4)

35) w + 0 = w
Additive Identity