1.
$\sqrt{16} = 4$, natural ($\mathcal{N}$), whole ($\mathcal{W}$), integer ($\mathcal{Z}$), rational ($\mathcal{Q}$), real ($\mathcal{R}$)

2.
0, whole ($\mathcal{W}$), integer ($\mathcal{Z}$), rational ($\mathcal{Q}$), real ($\mathcal{R}$)

3.
$-\frac{3}{2} = -1.5$, rational ($\mathcal{Q}$), real ($\mathcal{R}$)

4.
$\frac{-8}{-3} = 2.\overline{6}$, rational ($\mathcal{Q}$), real ($\mathcal{R}$)

5.


6.
$\pi\sqrt{4}$ (irrational)(rational)
$= \pi(2)$ (irrational)(rational)
$= 2\pi$ irrational

7.
$\frac{2}{3} + \frac{12}{3}$ rational + rational
$= \frac{14}{3}$ rational

8.
Sample: The sum of a rational and an irrational will always be irrational. The digits in 3.45 will only change the value of the first three digits of the irrational number. The rest of the number will continue on forever and will not be changed. This means the digits will not repeat and will not terminate making the sum irrational.

9. Associative Property (of Addition)

10. Substitution Property

11. Distributive Property

12. Inverse Property (of Multiplication)

13. Zero-Product Property

14. Additive Property of Equality

15. (right) Identity Property (Addition)