Pg 440-441 #7-23 odd, 24, 27, 28, 32-35

7. yes; The factor is greater than or equal to 1 and less than 10. The power of 10 has an integer exponent.

9. no; The factor is greater than 10.

11. yes; The factor is greater than or equal to 1 and less than 10. The power of 10 has an integer exponent.

13. no; The factor is less than 1.

15. 70,000,000

17. 500

19. 0.000044

21. 1,660,000,000

23. 9,725,000

24. The negative exponent means the decimal point will move left, not right, when the number is written in standard form. $4.1 \times 10^{-6} = 0.0000041$

27. **a.** Bellatrix

b. Betelgeuse

28. The value of the number is 10 times greater.

32. See *Taking Math Deeper*.

33. 4^5

34. 3^3y^3

35. $(-2)^3$

Pg 446-447 #1-8, 13-16, 20, 21, 23, 27, & 31-33

1. If the number is greater than or equal to 10, the exponent will be positive. If the number is less than 1 and greater than 0, the exponent will be negative.
2. It is appropriate to use scientific notation instead of standard form when a number is very large or very small.
3. 2.1×10^{-3}
4. 5.43×10^{6}
5. 3.21×10^{8}
6. 6.25×10^{-6}
7. 4×10^{-5}
8. 1.07×10^{7}

13. 72.5 is not less than 10. The decimal point needs to move one more place to the left. 7.25×10^{7}
14. 1.12×10^{8}, 1.19×10^{8}, 1.2×10^{8}
15. 6.09×10^{-5}, 6.78×10^{-5}, 6.8×10^{-5}
16. 5.7×10^{10}, 9.66×10^{11}, 5.76×10^{12}
20. 9.9×10^{-5} m
21. 4.01×10^{7} m
23. $680,\ 6.8 \times 10^{3},\ \frac{68{,}500}{10}$

27. 1.99×10^9 watts