

## 2.4 Exercises

Change the following numbers to scientific notation. Use 2 decimal places in the numbers with 2 or more places to the right of the decimal point. Do not use a calculator; use long division to get a rational number to a decimal form.

1.
  - a. 0.4
  - b. .00000056
  - c. 59.5
  - d.  $-8^{-1}$
  - e. 3,175,432
  
2.
  - a.  $-4^{-2}$
  - b. .03125
  - c.  $\frac{1}{20}$
  - d. 1,000,000,000
  - e. 5,275,000
  
3.
  - a.  $23(16)^{-1}$
  - b. 323,000,000
  - c.  $6^{-1}$
  - d. .000000017
  - e.  $-5^{-2}$
  
4.
  - a.  $-7^{-1}$
  - b. .000112
  - c.  $(2\sqrt{3})^2$
  - d.  $-2^{-2}$
  - e. 330,000,000,000

Simplify the following expressions without using a calculator. Report your answer in scientific notation.

5. 
$$\frac{16,000,000,000(.00025)}{500(.0000004)}$$

$$6. \frac{169,000(.00012)(2,000,000,000)}{.013(.00000004)}$$

$$7. \frac{.01(35,000)(.000033)}{11,000,000(.0000015)}$$

$$8. \frac{.0000000009(10,000)}{.00003(50,000)}$$

$$9. \frac{700(.00000006)}{.000021(30000)}$$

$$10. \frac{21.5}{.005}$$

$$11. \frac{36,000}{.003}$$

$$12. \frac{5^{-1}}{8(50)^{-1}}$$

$$13. \frac{5}{-2^{-2}}$$

$$14. \frac{(10^{-2})(5,000)}{5^{-2}(.00001)}$$

$$15. \frac{(.7)^2(2000)}{49,000(.005)}$$

Rewrite the problem using scientific notation on the base 10 numbers, then use your calculator to finish the “a” part of the answer with rounding as the final step.

16. 
$$\frac{.003576(313,450,000)}{.1234567(900,300,100)}$$

17. 
$$\frac{358,103,204(.00000057)}{6,001,003(.003478)}$$