

Intermediate 2 Unit 6 Review

Write each number in scientific notation.

1. 67,000 2. -5,401,000,000 3. 0.0000856 4. 0.00339
- 6.7×10^4 -5.401×10^9 8.56×10^{-5} 3.39×10^{-3}

Write each in standard form.

5. 6.302×10^5 6. 8.002×10^{-4} 7. 8.14×10^0 8. -6.22×10^{-3}
- 630,200 0.0008002 8.14 -0.00622

Use scientific notation to evaluate each expression. Write your answer in scientific notation and standard form.

9. $(4.7 \times 10^5)(2.8 \times 10^3)$ 10. $(7.5 \times 10^{11})(3 \times 10^5)$ 11. $\frac{2.8 \times 10^2}{0.7 \times 10^6}$ 12. $\frac{1.8 \times 10^{-14}}{2.4 \times 10^6}$
- 1.316×10^9 2.25×10^{17} 4×10^{-4} 7.5×10^{-21}
- 1,316,000,000 225,000,000,000,000,000 0.0004

Find the value of the expressions below in scientific notation

13. $(4.7 \times 10^5) - (2.8 \times 10^3)$ 14. $(2.451 \times 10^9) + (9.36 \times 10^{10})$ 15. $(8.114 \times 10^{12}) + (9.98 \times 10^{13})$
- 4.672×10^5 9.6051×10^{10} 1.07914×10^{14}

Solve the following problems. Leave your answers in scientific notation, include units if necessary

16. The world population is about 7.4×10^9 . The population of Canada is about 3.516×10^7 . About how many times larger is the world population than that of Canada?

2.104
or 2.105×10^2 times larger

17. The area of Canada, the United States and Mexico are $3.855 \times 10^6 \text{ mi}^2$, $3.806 \times 10^6 \text{ mi}^2$ and $7.6 \times 10^5 \text{ mi}^2$ respectively. Find the total area for Canada, the United States and Mexico.

~~7.6×10^5~~
 7.616

$8.4226 \times 10^6 \text{ mi}^2$

18. A technology company manufactures flash drives that each store approximately 8.58×10^9 bytes of data. Each day, the company manufactures 7.2×10^3 of these flash drives. How much data could be stored on the flash drives manufactured in one day?

$$6.1776 \times 10^{13} \text{ bytes of data}$$

19. In 2015, the population of China was approximately 1.40159×10^9 people. The population of China in 1960 was approximately 6.6058×10^8 people. How many more people lived in China in 2015 than in 1960?

$$7.4101 \times 10^8 \text{ people}$$

20. The debt of the United States is 1.8×10^{13} dollars. The population of the United States is about 300,000,000 people. If each person were to pay his or her fair share of the debt, how much would that be per person?

$$\$60,000$$

$$\text{or } \$6.0 \times 10^4$$

Find the square root (round to the tenths place if necessary):

21. $-\sqrt{\frac{16}{81}}$
 $-\frac{4}{9}$

22. $\sqrt{-256}$
 NOT
 Real

23. $\pm\sqrt{49}$
 ± 7

Find the cube root (round to the tenths place if necessary):

24. $\sqrt[3]{27}$
 3

25. $\sqrt[3]{-216}$
 -6

26. $-\sqrt[3]{1000}$
 -10

Solve each equation

27. $b^2 = 100$

$$b = \pm 10$$

28. $\frac{25}{36} = n^2$

$$n = \pm \frac{5}{6}$$

29. $\sqrt{c} = 9$

$$c = 81$$

30. $a^3 = 64$

$$a = 4$$

31. $343 = g^3$

$$g = 7$$

Between which two integers does the square lie? Then, estimate to the nearest tenths place.

32. $\sqrt{43}$

$$6 \text{ \& } 7$$

$$6.5$$

33. $\sqrt{390}$

$$19 \text{ \& } 20$$

$$19.7$$

34. $\sqrt{23.9}$

$$4 \text{ \& } 5$$

$$4.8$$

35. $\sqrt[3]{60}$

$$3 \text{ \& } 4$$

$$3.9$$

36. $\sqrt[3]{320}$

$$6 \text{ \& } 7$$

$$6.8$$

Simplify the radicals.

37. $\sqrt{18}$

$3\sqrt{2}$

38. $\sqrt{75}$

$5\sqrt{3}$

39. $7\sqrt{42}$

40. $6\sqrt{45}$

$18\sqrt{5}$

41. $\sqrt{48}$

$4\sqrt{3}$

Order the set from least to greatest. Don't forget to show work.

42. $\{\sqrt{15}, 200\%, \sqrt[3]{50}, 2.1, 2\frac{1}{9}\}$

$200\%, 2.1, 2\frac{1}{9}, \sqrt[3]{50}, \sqrt{15}$

Simplify the expressions:

43. $\sqrt{7} \cdot \sqrt{42}$

$7\sqrt{6}$

44. $3\sqrt{21} \cdot 5\sqrt{15}$

$45\sqrt{35}$

45. $\frac{\sqrt{72}}{\sqrt{8}}$

3

46. $\frac{6\sqrt{130}}{2\sqrt{26}}$

$3\sqrt{5}$

47. $3\sqrt{18} + 3\sqrt{12} + 2\sqrt{27}$

$9\sqrt{2} + 12\sqrt{3}$

48. $3\sqrt{18} - 3\sqrt{8} - \sqrt{24}$

$3\sqrt{2} - 2\sqrt{6}$

49. $3\sqrt{8} + 3\sqrt{2}$

$9\sqrt{2}$

50. $\sqrt{45} + 2\sqrt{5} - \sqrt{20} - 2\sqrt{6}$

$3\sqrt{5} - 2\sqrt{6}$