Unit 4 Review

Solving Problems with Rational Numbers

Name_____
Date_____
Period_____

Show your work. Circle your final answer.

HOW TO USE THIS. This review covers each part of the assessment, with more questions than the assessment has. Work it in parts. If you miss two or more in a part, that part is where to spend your study time. The reference sheet has everything you need for each part.

Adding and Subtracting in Scientific Notation

Lesson 4.01 · 6 questions

1. $(4.1 \times 10^{6}) + (2.3 \times 10^{6})$

2. $(7.6 \times 10^{-4}) - (2.9 \times 10^{-4})$

3. $(8.2 \times 10^{5}) + (4.9 \times 10^{5})$

4. $(5.4 \times 10^{8}) + (7.1 \times 10^{7})$

5. $(6.3 \times 10^{-2}) - (8 \times 10^{-4})$

6. Lena writes $(3.2\times10^4)+(5.5\times10^6)=8.7\times10^{10}$. Name her two mistakes and give the correct sum.

Multiplying and Dividing in Scientific Notation

Lessons 4.02–4.03 · 6 questions

7. $(4\times10^3)(2\times10^6)$

8. $\frac{7.2\times10^8}{1.8\times10^3}$

9. $(5\times10^6)(8\times10^{-2})$

10. $\frac{2.4\times10^5}{8\times10^9}$

11. $\frac{4\times10^7}{4\times10^{-3}}$

12. A laser emits 6.5×10^{14} photons each second. How many does it emit in 4×10^{2} seconds?

Real-World Problems in Scientific Notation

Lesson 4.04 · 4 questions

13. A rectangular panel measures 3.2×10^{2} mm by 1.45×10^{2} mm. Find its area, in scientific notation. Do not round.

14. A train travels 4.8×10^{2} km in 6 hours. Find its average speed, in scientific notation. Do not round.

15. Two lengths are measured: 5.4×10^{3} mm and 2.8×10^{2} mm. Find their sum, in scientific notation. Do not round.

16. Two masses are measured: 7.6×10^{-2} g and 3.42×10^{-3} g. Find their difference, in scientific notation. Do not round.

17. $\sqrt{169}$

18. $\sqrt[3]{-8}$

19. $\sqrt{7^2 - 24}$

20. $\sqrt[3]{\frac{1}{27}}$

21. $\sqrt{100} \cdot 4^{-2}$

22. $\left(-\frac{1}{2}\right)^2 + \sqrt{3^2 + 7}$

23. Kai says that $\sqrt[3]{-64}$ is not a real number. Is he right? Explain.

The Order of Operations

Lesson 4.06 · 7 questions

24. $24 - 3 \cdot 5 + 1$

25. $48 \div 6 \cdot 2$

26. $4 + 3(8 - 5)^2$

27. $\frac{6^2 + 9}{3^2 - 4}$

28. $-6^2 + (-6)^2$

29. $20\left(\left(\frac{1}{2}\right)^2 + 5^{-1}\right)$

30. Which expression is equivalent in value to $2+4\cdot5^2$?

- ○ A. 900
- ○ B. 102
- ○ C. 42
- ○ D. 150

Real-World Problems and the Order of Operations

Lessons 4.07–4.08 · 5 questions

31. Evaluate $5x^2$ when $x=-3$.

32. Kinetic energy is $K=\frac{1}{2}mv^2$. Find K when $m=400$ kg and $v=7$ m/s.

33. A gym charges 30 dollars to join plus 12 dollars for each of 4 months. A second gym charges 30 dollars for each of 12 months plus 4 dollars to join. Find both totals.

34. Every part below is about a square patio of side 15 feet, sealed at 2.20 dollars a square foot with a flat 60 dollars for delivery.

a. What is the area of the patio?

b. Write an expression for the total cost.

c. Find the total cost.

d. A second square patio, at the same rate and the same flat fee, costs 940 dollars. What is its side?

35. A square court of side 18 feet is resurfaced at 3.50 dollars a square foot, with a flat 140 dollars for the equipment. Which expression gives the total cost?

- ○ A. $18^2(3.50 + 140)$
- ○ B. $18(3.50) + 140$
- ○ C. $18^2 + 3.50 + 140$
- ○ D. $18^2(3.50) + 140$