Math 9 Lesson 1: BEDMAS Operations (solutions)

- Operations with rational numbers
  (addition, subtraction, multiplication, division, and order of operations)

1. $\frac{2}{3}+\frac{1}{2}$
   $\frac{7}{6}$

2. $3+\frac{3}{4}$
   $\frac{15}{4}$

3. $3\frac{2}{3}$ is a mixed fraction. Write this fraction in the form $\frac{a}{b}$
   $\frac{11}{3}$

4. 1.2×3.4
   4.08

5. $\frac{2}{3} \times \frac{4}{7}$
   $\frac{8}{21}$

6. $2 \times \frac{3}{4}$
   $\frac{3}{2}$

7. $\frac{3}{5} \div \frac{4}{5}$
   $\frac{3}{4}$

8. $2 \div \frac{3}{5}$
   $2 \times \frac{5}{3}$
   $\frac{10}{3}$

9. $3+2 \times 4-6$
   5

10. $0 \div 2$
    0

11. $\frac{12}{2 \times 3}$
    2

12. $3^2+5(1-2)^3$
    $9+5(-1)$
    4

13. 123×456
    $56\,088$

14. 32.4×1.27
41.148

15. -3^2
-9

16. $-(-4)^2$
-16

17. $(-1)^{101}$
-1

18. $-3(-2)$
6

19. $3\frac{2}{3} + \frac{4}{5} - 1$
$\frac{52}{15}$ or $3\frac{7}{15}$

20. $\frac{2/3}{3/4}$
$\frac{8}{9}$

21. $6 \div 2(1+2)$
$3(3) = 9$

22. $\left(\frac{3}{2}\right)^2$
$\frac{9}{4}$

23. $\sqrt{\frac{9}{64}}$
$\frac{3}{8}$

24. $-2\left(3 - \frac{2}{3}\right)$
$-\frac{14}{3}$

25. $\sqrt{400}$
20

26. $\sqrt{-25}$
Undefined

27. $\sqrt{4} + \sqrt[3]{-8}$
$2 - 2 = 0$

28. Express $\frac{1230481}{3}$

    a. As a mixed fraction
    $410,160\frac{1}{3}$

    b. As a decimal number
    $410,160.\overline{3}$

    c. As a percent
    $41,016,033.\overline{3}\%$

29. Express $\frac{205713}{12}$ as a decimal number.
    17142.75

30. Simplify as a fraction: $0.\overline{3} + (5 - 1.\overline{6})$
    $\frac{1}{3} + 5 - \frac{5}{3} = \frac{11}{3}$

31. Round 23578 to the nearest thousand
    $24,000$

32. Simplify $\frac{12.4}{0.06}$ in the form $\frac{a}{b}$
    $\frac{1240}{6} = \frac{620}{3}$

33. $\frac{8 \div 2}{\frac{4}{3}}$
    $4 \div \frac{4}{3}$
    $4 \times \frac{3}{4} = 3$

34. $-\frac{3}{4} \div \frac{1}{5} + \left(-\frac{1}{3} \times -\frac{5}{2}\right)$
    $-\frac{3}{4} \times 5 + \frac{1}{3} \times \frac{5}{2}$
    $-\frac{15}{4} + \frac{5}{6}$
    $-\frac{35}{12}$

35. $(-2^3)^2 - (-1)^{130} \div \left(\frac{2}{3}\right)$
    $(-8)^2 - 1 \times \frac{3}{2}$
    $64 - \frac{3}{2}$
    $\frac{125}{2}$

36. $3(1-5)-\frac{(-3)^2}{-2^2}\left(2-(5-6)\right)$

$3(-4)-\frac{9}{-4}(2+1)$

$-12+\frac{9}{4}(3)$

$-\frac{21}{4}$

37. What is $\frac{1}{2}\%$ of a billion?

$0.005\times 1,000,000,000$

5,000,000 = 5 million

38. Challenge:

a. $0\div 0$

Undefined

b. $\infty-\infty$

Undefined

c. Convert $0.\overline{7}$ to a fraction

$\frac{7}{9}$

d. Convert $2.0\overline{13}$ to a fraction

$x=0.0\overline{13}$

$10x=0.\overline{13}$

$1000x=13.\overline{13}$

$990x=13$

$x=\frac{13}{990}$

$2+x=\frac{1993}{990}$ or $2\frac{13}{990}$