

1. $2 + 3 \times 4$
 $2 + 12 = 14$

2. $-3^2 + (-3)^2$
 $-9 + 9 = 0$

3. $3 - (-4)^2$
 $3 - 16 = -13$

4. $-3(-2)$
6

5. $\frac{2}{3} + \frac{4}{5} - 1$
 $\frac{10}{15} + \frac{12}{15} - \frac{15}{15} = \frac{7}{15}$

6. $1\frac{2}{3} \div \frac{1}{2}$
 $\frac{5}{3} \times \frac{2}{1} = \frac{10}{3}$

7. $\frac{2/3}{3/4}$
 $\frac{2}{3} \div \frac{3}{4}$
 $= \frac{2}{3} \times \frac{4}{3} = \frac{8}{9}$

8. $\left(\frac{3}{2}\right)^2 + \frac{0}{1} - \sqrt{\frac{1}{64}}$
 $\frac{9}{4} + 0 - \frac{1}{8} = \frac{18}{8} - \frac{1}{8} = \frac{17}{8}$

9. $-2(-3) \div -1^2 + (1^0 - 0^1)$
 $6 \div -1 + 1 = -6 + 1 = -5$

10. $\sqrt[3]{-8} + \left(\frac{2}{3}\right)^2$
 $-2 + \frac{4}{9} = -\frac{18}{9} + \frac{4}{9} = -\frac{14}{9}$

11. Express $\frac{1230481}{3}$
- a. As a mixed fraction
Use long division to get: $410160\frac{1}{3}$
 - b. As a decimal number
 $410160.\bar{3}$

12. $0.\bar{3} + (5 - 1.\bar{6})$
 $\frac{1}{3} + \left(5 - 1\frac{2}{3}\right)$

$$= \frac{1}{3} + \left(\frac{15}{3} - \frac{5}{3}\right) = \frac{1}{3} + \frac{10}{3} = \frac{11}{3}$$

$$13. \frac{\frac{12.4}{0.02}}{\frac{1240}{2}} = 620$$

$$14. \frac{8 \div 2}{\frac{4}{3}} = 4 \div \frac{4}{3} = 4 \times \frac{3}{4} = 3$$

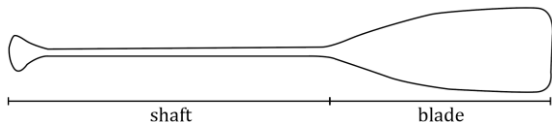
$$15. 1 - 2 \times \left(\frac{4}{5}\right)^2 = 1 - 2 \times \frac{16}{25} = \frac{25}{25} - \frac{32}{25} = -\frac{7}{25}$$

$$16. -\frac{3}{4} \div \frac{1}{5} + \left(-\frac{1}{3} \times -\frac{5}{2}\right) = -\frac{3}{4} \times \frac{5}{1} + \frac{5}{2} = -\frac{15}{4} + \frac{5}{2} = -\frac{45}{12} + \frac{30}{12} = -\frac{15}{12} = -\frac{5}{4}$$

$$17. (-2^3)^2 - (-1)^{101} \div \left(\frac{2}{10}\right) = (-8)^2 - (-1) \div \frac{2}{10} = 64 + 1 \div \frac{2}{10} = 64 + 0.5 = 64.5 = \frac{129}{2}$$

18. Challenge 1: $0 \div 0$
Undefined

19. Challenge 2: See diagram below:



Suppose the “blade” of a canoe paddle is $\frac{2}{5}$ of its total length. The shaft portion of the paddle is 100 cm. How long are a dozen paddles put together tip to tip?

Let x be the total length of the paddle.

The shaft portion of the paddle is $1 - \frac{2}{5} = \frac{3}{5}$ of the total length or $\frac{3}{5}x$

$$\frac{3}{5}x = 100$$

$$3x = 500$$

$$x = \frac{500}{3} = 166\frac{2}{3} = 166.\bar{6}$$

The length of a dozen paddles is $12x$

$$12x = \frac{500}{3} \times 12 = 500 \times 4 = 2000 \text{ cm or } 20 \text{ m}$$