

ICNS015 Refresher Mathematics  
Quiz 1(10%)

out of 20 points

Name: Solutions Student ID: \_\_\_\_\_ Section: \_\_\_\_\_

Write your final answer on the provided space on the right of the page.

1. (1 point) What property of real number allows us to write  $(b + c)a = (c + b)a$ ?

- A. associative
- B. identity
- C. distributive
- D. commutative
- E. none of the above

1. D

2. (1 point) Circle all rational numbers.

4,  $\pi$ , 2.12,  $e$ , 3.1444...,  $\sqrt{5}$

3. (1 point) The additive inverse of  $-\frac{1}{2}$  is

3.  $\frac{1}{2}$

4. (1 point) The multiplicative inverse of  $-3$  is

4.  $-\frac{1}{3}$

5. (1 point) Simplify  $\frac{2}{3/4} = 2 \cdot \frac{4}{3} = \frac{8}{3}$

5.  $\frac{8}{3}$

6. (1 point) Simplify  $3 - 2(5 + 3(1 - 3))$

$$3 - 2(5 + 3(-2)) = 3 - 2(-1) = 3 + 2 = 5$$

6. 5

7. (1 point) Simplify  $\frac{1}{6} + \frac{3}{8} - \frac{5}{12}$

$$= \frac{4 + 9 - 10}{24} = \frac{3}{24} = \frac{1}{8}$$

7.  $\frac{1}{8}$

8. (1 point) Simplify  $\frac{3}{5} \div \frac{8}{9}$

$$= \frac{3}{5} \times \frac{9}{8} = \frac{27}{40}$$

8.  $\frac{27}{40}$

9. (1 point) Simplify  $\frac{2 + \frac{1}{3}}{14}$

$$= \frac{\frac{7}{3}}{14} = \frac{7}{3 \cdot 14} = \frac{1}{6}$$

9.  $\frac{1}{6}$

10. (1 point) Simplify  $\left(\frac{4}{100}\right)^{-1/2} = \left(\frac{100}{4}\right)^{1/2} = (25)^{1/2} = 5$

10. 5

11. (1 point) Simplify  $9^{3/2} = (9^{1/2})^3 = 3^3 = 27$

11. 27

12. (1 point) Simplify  $(-8)^{4/3} = ((-8)^{1/3})^4 = (-2)^4 = 16$

12. 16

13. (1 point) Simplify  $x^2(2x^3)^2x^2 = x^2 \cdot 4 \cdot x^6 \cdot x^2 = 4x^{10}$

13.  $4x^{10}$

14. (1 point) Simplify and express your answer in terms of *positive* exponents

$$\frac{(x^5)^2 y^7}{x^2 y^5} = \frac{x^{10} y^7}{x^2 y^5} = x^8 y^2$$

14.  $x^8 y^2$

15. (1 point) Simplify and express your answer in terms of *positive* exponents

$$\frac{(x^2 y^{-3})^{-2}}{x^{-5} y^2} = \frac{x^{-4} y^6}{x^{-5} y^2} = \frac{x^5 y^6}{x^4 y^2} = x y^4$$

15.  $x y^4$

16. (1 point) Simplify  $6x^2 - 10x + 7 - (2x - 2)^2$

$$= 6x^2 - 10x + 7 - (4x^2 - 8x + 4) = 2x^2 - 2x + 3$$

$$= 6x^2 - 10x + 7 - 4x^2 + 8x - 4$$

16.  $2x^2 - 2x + 3$

17. (1 point) Simplify  $7(x - y) - 4(y - x)$

$$= 7x - 7y - 4y + 4x = 11x - 11y$$

17.  $11x - 11y$

18. (3 points) Divide and simplify  $\frac{2x^3 - 4x^2 + 2x + 1}{2x - 1}$

$$2x-1 \overline{) \begin{array}{r} x^2 - \frac{3}{2}x + \frac{1}{4} \\ 2x^3 - 4x^2 + 2x + 1 \\ \underline{2x^3 - x^2} \\ -3x^2 + 2x \\ \underline{-3x^2 + \frac{3}{2}x} \\ \frac{1}{2}x + 1 \\ \underline{\frac{1}{2}x - \frac{1}{4}} \\ \frac{5}{4} \end{array}}$$

$$= x^2 - \frac{3}{2}x + \frac{1}{4} + \frac{5/4}{2x-1}$$