

Mth 098 – Intermediate Algebra – Practice Exam 1 Solutions

1. $A = \{1, 2, 3, 4\}$

2.

a. 5

b. 5, -3, 0

c. $5, -2.75, -3, 0, \frac{5}{9}$

d. $\sqrt{2}$

e. $5, -2.75, \sqrt{2}, -3, 0, \frac{5}{9}$

3.

a. $A \cup B = \{1, 2, 3, 4, 5, 6, 8\}$

b. $A \cap B = \{2, 4\}$

4.



5.

a. $|-4| - |-4| - |-4 - 4| = 4 - 4 - |-8| = 0 - 8 = -8$

b. $-|8| \cdot \left| \frac{-1}{2} \right| = -8 \cdot \frac{1}{2} = -4$

c. $-\frac{1}{8} + \left(-\frac{1}{16}\right) = -\frac{1}{8} \cdot \frac{2}{2} + \left(-\frac{1}{16}\right) = -\frac{2}{16} + \left(-\frac{1}{16}\right) = -\frac{3}{16}$

d. $-4^2 = -16$

e. $\sqrt[3]{-27} = -3$

f. $4 \cdot 3 \div 6 - 2^2 = 4 \cdot 3 \div 6 - 4 = 12 \div 6 - 4 = 2 - 4 = -2$

g. $2[4 - 2(-3)]^2 = 2[4 + 6]^2 = 2[10]^2 = 2 \cdot 100 = 200$

h. $2^{-3} = \frac{1}{2^3} = \frac{1}{8}$

i. $-5^{-2} = -\frac{1}{5^2} = -\frac{1}{25}$

6.

a. $2x^{-3} = \frac{2}{x^3}$

b. $(-7v^4)(-3v^{-5}) = 21v^{-1} = \frac{21}{v}$

c. $\frac{6x^{-2}y^3z^{-2}}{-2x^4y} = \frac{6}{-2} \cdot \frac{x^{-2}}{x^4} \cdot \frac{y^3}{y} \cdot z^{-2} = -3x^{-6}y^2z^{-2} = -\frac{3y^2}{x^6z^2}$

d. $-3(x^{-3})^2 = -3x^{-6} = -\frac{3}{x^6}$

e. $(4s^{-3}t^{-4})^2 = 4^2(s^{-3})^2(t^{-4})^2 = 16s^{-6}t^{-8} = \frac{16}{s^6t^8}$

f. $\left(\frac{3x^{-2}}{xy}\right)^{-2} = \left(\frac{3x^{-3}}{y}\right)^{-2} = \frac{3^{-2}(x^{-3})^{-2}}{y^{-2}} = \frac{3^{-2}x^6}{y^{-2}} = \frac{x^6y^2}{3^2} = \frac{x^6y^2}{9}$

g. $\left(\frac{24x^{32}y^{-3}z^4}{3x^{14}y^{-7}z}\right)^0 = 1$

7.

a. 5.26×10^9

b. 5.56×10^{-6}

8.

a. 5,780,000

b. 0.000 24

9. $(9.5 \times 10^{12})(1.5 \times 10^5) = (9.5 \cdot 1.5) \times (10^{12} \cdot 10^5) = 14.25 \times 10^{17} = 1.425 \times 10^{18}$