1) Write the sum S, difference D, product P, and quotient Q of each of the following pairs of numbers:

**a)**
$54 + 18 =$ _____
$54 - 18 =$ _____
$54 \times 18 =$ _____
$54 \div 18 =$ _____

**b)**
$4 + 0 =$ _____
$4 - 0 =$ _____
$4 \times 0 =$ _____
$4 \div 0 =$ _____

**c)**
$0 + 4 =$ _____
$0 - 4 =$ _____
$0 \times 4 =$ _____
$0 \div 4 =$ _____

**d)**
$12 + 24 =$ _____
$12 - 24 =$ _____
$12 \times 24 =$ _____
$12 \div 24 =$ _____

**e)**
$50 + 75 =$ _____
$50 - 75 =$ _____
$50 \times 75 =$ _____
$50 \div 75 =$ _____

2) Perform the indicated operations:

**a)** $38 + 57 =$ **a)** _____
**b)** $57 + 38 =$ **b)** _____
**c)** $15 + (33 + 8) =$ **c)** _____
**d)** $(15 + 33) + 8 =$ **d)** _____
**e)** $(23 + 64) - (41 + 12) =$ **e)** _____
**f)** $12 \times 8 =$ **f)** _____
**g)** $8 \times 12 =$ **g)** _____
**h)** $6(4 \times 8) =$ **h)** _____
**i)** $(6 \times 4)8 =$ **i)** _____
**j)** $42 \times 68 =$ **j)** _____
**k)** $1296 \div 36 =$ **k)** _____
**l)** $\dfrac{(35 - 23)(28 + 17)}{43 - 25} =$ **l)** _____
**m)** $45 \div 15 + 84 \div 12 =$ **m)** _____
**n)** $10 \div 5 - 4 \div 2 + 15 \div 3 + 2 \times 5 =$ **n)** _____
**o)** $112 \div (4 \times 7) =$ **o)** _____
**p)** $(112 \div 4) \times 7 =$ **p)** _____
**q)** $\dfrac{15 + 3 \times 2}{9 - 4 \div 2} =$ **q)** _____

3) Arrange each of the following groups of real numbers in ascending order of magnitude from lowest to highest:

**a)** $-\sqrt{3},\ -2,\ \sqrt{6},\ -2.8,\ 4,\ 7/2$

**b)** $2\pi,\ -6,\ \sqrt{8},\ -3\pi,\ 4.8,\ 19/3$

4) Evaluate:

**a)** $6+5=$ **a)** _____
**b)** $(-4)+3=$ **b)** _____
**c)** $-8+4=$ **c)** _____
**d)** $(-18)+(-3)+22=$ **d)** _____
**e)** $-(-16)-(-12)+(-5)-15=$ **e)** _____

5) Write the sum S, difference D, product P, and quotient Q of each of the following pairs of numbers:

**a)**
$12+4=$ _____
$12-4=$ _____
$12\times 4=$ _____
$12\div 4=$ _____

**b)**
$-6+-3=$ _____
$-6--3=$ _____
$-6\times -3=$ _____
$-6\div -3=$ _____

**c)**
$-8+4=$ _____
$-8-4=$ _____
$-8\times 4=$ _____
$-8\div 4=$ _____

**d)**
$0+-4=$ _____
$0--4=$ _____
$0\times -4=$ _____
$0\div -4=$ _____

**e)**
$3+-2=$ _____
$3--2=$ _____
$3\times -2=$ _____
$3\div -2=$ _____

6) Convert each of the following fractions into an equivalent fraction having the indicated denominator and write the numerator in the blank:

**a)** $\frac{2}{5} = \frac{?}{15}$ _____

**b)** $\frac{-4}{7} = \frac{?}{28}$ _____

**c)** $\frac{5}{16} = \frac{?}{64}$ _____

**d)** $\frac{-10}{3} = \frac{?}{42}$ _____

**e)** $\frac{11}{12} = \frac{?}{132}$ _____

**f)** $\frac{17}{18} = \frac{?}{90}$ _____

7) Write the sum S, difference D, product P, and quotient Q of each of the following pairs of rational numbers:

**a)** $1/4 + 3/8 =$ **a)** _____
$1/4 - 3/8 =$ _____
$1/4 \times 3/8 =$ _____
$1/4 \div 3/8 =$ _____

**b)** $1/3 + 2/5 =$ **b)** _____
$1/3 - 2/5 =$ _____
$1/3 \times 2/5 =$ _____
$1/3 \div 2/5 =$ _____

**c)** $-4 + 2/3 =$ **c)** _____
$-4 - 2/3 =$ _____
$-4 \times 2/3 =$ _____
$-4 \div 2/3 =$ _____

**d)** $-2/3 + -3/2 =$ **d)** _____
$-2/3 - -3/2 =$ _____
$-2/3 \times -3/2 =$ _____
$-2/3 \div -3/2 =$ _____

**e)** $5/12 + -10/3 =$ **e)** _____
$5/12 - -10/3 =$ _____
$5/12 \times -10/3 =$ _____
$5/12 \div -10/3 =$ _____