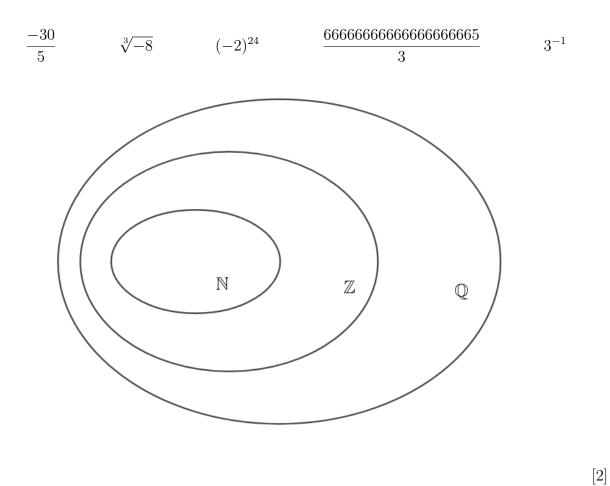
## Name: Group 1 Result:

## 1.

Place the following numbers in appropriate regions of the diagram below:





gcd(2100, 378) =

lcm(72, 60) =

**3.** Expand (if possible) and simplify:

(a) 
$$2\sqrt{50} - 3\sqrt{72} + 4\sqrt{18}$$

(b) 
$$(3+\sqrt{2})^2 - 2(\sqrt{2}-1)^2 - (\sqrt{2}+4)(\sqrt{2}-4) =$$

4. Rationalize the denominators in the following expressions:

[3]

(a) 
$$\frac{8}{\sqrt{3}} =$$

(b) 
$$\frac{5-\sqrt{3}}{5+\sqrt{3}} =$$

**5.** Solve the following equations:

(a) 
$$\frac{x-5}{3} - \frac{2x+1}{4} = \frac{3-x}{2}$$

(b) 
$$(3x-2)^2 - (2x+1)^2 = 5(x-3)(x+3)$$

6. Write without the absolute value and simplify:

$$|5 - \sqrt{7}| + |\sqrt{7} - 3| - |2\sqrt{7} - 8| =$$

7. Solve the following equation:

[4]

[1]

# (a) 2|3x+2|+11=8

(b) 
$$\frac{|x-3|+2}{3} - \frac{|3-x|-1}{2} = 5$$

8. Write the following expressions as a single power of 2 (part (a)) or 5 (part (b)): [4]

(a) 
$$\frac{(\frac{1}{4})^{-2} \cdot 8^4 \cdot \frac{1}{16}}{(\sqrt{2})^{10} \cdot (0.25)^{-3}}$$

(b) 
$$\frac{(0.2)^{-1} \cdot 125^{-2} \cdot \frac{1}{25}}{(0.04)^3 \cdot (\sqrt[3]{25})^6}$$

## 9.

[2]The price of an item has been increased by 17% and then decreased by 9%. Find the initial price, if after the two changes the final price is 1277.64 PLN.

#### 10.

[2]An item cost 900. After the price was increased by p% twice, the price changed to 1296. Calculate p.

11.

[2]

An item cost 1500. The price was increased by p% and then decreased by p%. As a result of these two changes the price is now 1497.6. Calculate p.

12. Calculate

 $\frac{(2.53\cdot 10^9)\cdot (3.11\cdot 10^{-3})}{(9.33\cdot 10^{15})\cdot (8.91\cdot 10^{11})} =$ 

Write your answer in standard form and rounded to 3 significant figures.

## 13.

Round the following numbers as required:

	2 decimal places	2 significant figures	nearest integer
0.040251			
519.673			
35202.2212			

## 14.

A rectangular field is 184 metres long and 23 metres wide. Round these measurements to 1 significant figure to approximate the area of the field and calculate the percentage error of your approximation.

[3]

[2]

### 15.

[3]The distance from Warsaw to Kraków is 300 km rounded to 2 s.f. If a car is travelling at an average velocity of 80 km per hour (rounded to 1 s. f.), estimate the time of the journey and calculate the maximum percentage error of your estimate.