ΕΡΓΑΣΙΑ ΧΡΙΣΤΟΥΓΕΝΝΩΝ
Α' ΓΥΜΝΑΣΙΟΥ

1. 2^9 , 3^7 , 5^6 , 10^4

2. $A = 6 + (3 \cdot 4 + 4)^2 : 10^2$
$A = 6 + (12+4)^2 : 100$
$A = 6 + 16^2 : 100$
$A = 6 + 256 : 100$
$A = 25606$

$B = 22 - 4^2 + (7-2^2)^2$
$B = 22 - 16 + (7-4)^2$
$B = 22 - 16 + 3^2$
$B = 22 - 16 + 9$
$B = 15$

3. $A = \frac{6 \cdot 2}{15 \cdot 2} = \frac{12}{30}$ $B = \frac{6 \cdot 5}{15 \cdot 5} = \frac{30}{75}$ $\Gamma = \frac{6 \cdot 7}{15 \cdot 7} = \frac{42}{105}$

$\Delta = \frac{6 \cdot 9}{15 \cdot 9} = \frac{54}{135}$

4. Α) $\frac{3}{15} < \frac{7}{15} < \frac{9}{15} < \frac{13}{15}$

Β) $\frac{7}{9} < \frac{7}{6} < \frac{7}{5} < \frac{7}{3}$

Γ) ΕΚΠ$(6,9,12,18) = 2^2 \cdot 3^2 = 4 \cdot 9 = 36$

6	9	12	18	2
3	9	6	9	2
3	9	3	9	3
1	3	1	3	3
1	1	1	1	

$\frac{6}{5}, \frac{3}{11}, \frac{2}{17}, \frac{4}{8}$

$\frac{30}{36}, \frac{33}{36}, \frac{34}{36}, \frac{32}{36}$

οπότε: $\frac{30}{36} < \frac{32}{36} < \frac{33}{36} < \frac{34}{36}$ δηλ. $\frac{5}{6} < \frac{8}{9} < \frac{11}{12} < \frac{17}{18}$

5. $A = \left(4 - \frac{1}{\frac{5}{3}}\right) + \left(\frac{2}{\frac{2}{3}} + \frac{1}{6}\right) - \left(\frac{3^2}{5} - \frac{9}{15:3}\right)$

$A = \left(\frac{12}{3} - \frac{5}{3}\right) + \left(\frac{4}{6} + \frac{1}{6}\right) - \left(\frac{9}{5} - \frac{3}{5}\right)$

$A = \frac{10}{\frac{7}{3}} + \frac{5}{6} - \frac{6}{5}$ ΕΚΠ$(3,6,5) = 30$

$A = \frac{70}{30} + \frac{25}{30} - \frac{36}{30}$

$A = \frac{59}{30}$

$$B = \left(2^3 - \frac{3^2}{2^3}\right) + \left(\frac{2 \cdot 4^2}{16} - \frac{9}{24}\right)$$

$$B = \left(\overset{8}{8} - \frac{9}{8}\right) + \left(\frac{2 \cdot \cancel{16}}{\cancel{16}} - \frac{9}{24}\right)$$

$$B = \left(\frac{64}{8} - \frac{9}{8}\right) + \left(\overset{24}{2} - \frac{9}{24}\right)$$

$$B = \frac{55}{8} + \left(\frac{48}{24} - \frac{9}{24}\right)$$

$$B = \overset{3}{\frac{55}{8}} + \frac{39}{24}$$

$$B = \frac{165}{24} + \frac{39}{24}$$

$$B = \frac{204 : 12}{24 : 12}$$

$$B = \frac{17}{2}$$

$$\Gamma = 3\frac{1}{2} + \left(\overset{3}{\frac{4}{5}} - \overset{5}{\frac{2}{3}}\right) + 2^2\frac{3}{5}$$

$$\Gamma = \frac{7}{2} + \left(\frac{12}{15} - \frac{10}{15}\right) + 4\frac{3}{5}$$

$$\Gamma = \overset{15}{\frac{7}{2}} + \overset{2}{\frac{2}{15}} + \overset{6}{\frac{23}{5}}$$

$$\Gamma = \frac{105}{30} + \frac{4}{30} + \frac{138}{30}$$

$$\Gamma = \frac{247}{30}$$

$$\Delta = 4\frac{1}{5} - 3\frac{1}{3} + 3^3\frac{3}{10}$$

$$\Delta = \overset{6}{\frac{21}{5}} - \overset{10}{\frac{10}{3}} + \overset{3}{\frac{273}{10}}$$

$$\Delta = \frac{126}{30} - \frac{100}{30} + \frac{819}{30}$$

$$\Delta = \frac{845 : 5}{30 : 5} = \frac{169}{6}$$

6. a) $\frac{x-5}{8} = 0$

$x - 5 = 0$

$x = 5$

b) $\frac{4-x}{3} = 0$

$4 - x = 0$

$x = 4$

c) $\frac{x-3}{8} = 1$

$x - 3 = 8$

$x = 8 + 3$

$x = 11$

d) $\frac{x+4}{7} = 1$

$x + 4 = 7$

$x = 7 - 4$

$x = 3$

e) $\frac{x+5}{13} = 1$

$x + 5 = 13$

$x = 13 - 5$

$x = 8$

7. a) $\overset{2}{\frac{1}{5}} + \frac{x+2}{10} = \frac{7}{10}$

$\frac{2}{10} + \frac{x+2}{10} = \frac{7}{10}$

$\frac{2+x+2}{10} = \frac{7}{10}$

$x + 4 = 7$

$x = 7 - 4$

$x = 3$

β) $\frac{9}{x} = \frac{36}{63}$

$\frac{9x}{63} = \frac{36}{63}$

$9x = 36$

$x = 36 : 9$

$x = 4$

γ) $\frac{x-1}{12} + \frac{5}{6} = \frac{12}{3}$ (2)

$\frac{x-1}{12} + \frac{10}{12} = \frac{36}{12}$

$\frac{x-1+10}{12} = \frac{36}{12}$

$x + 9 = 36$

$x = 36 - 9$

$x = 27$

δ) $x + 3\frac{5}{6} = \frac{29}{3}$

$x + \frac{23}{6} = \frac{29}{3}$

$x = \frac{29}{3} - \frac{23}{6}$ (2) (1)

$x = \frac{58}{6} - \frac{23}{6}$

$x = \frac{35}{6}$

ε) $x - \left(\frac{1}{2} + \frac{1}{4}\right) = \frac{3}{4}$ (2) (1)

$x - \left(\frac{2}{4} + \frac{1}{4}\right) = \frac{3}{4}$

$x - \frac{3}{4} = \frac{3}{4}$

$x = \frac{3}{4} + \frac{3}{4}$

$x = \frac{6}{4} : 2$ έχω $x = \frac{3}{2}$

8. ① $\phi = 60°$ ως κατακορυφήν με την $60°$.
$\omega = 180° - 80° = 100°$ ως παραπληρωματική της $80°$.
$z = 180° - 60° = 120°$ ως παραπληρωματική της ϕ
② $\phi = 90° - 30° = 60°$ ως συμπληρωματική της $30°$.
$x = 30°$ ως κατακορυφήν της $30°$.
$\omega = 180° - 30° = 150°$ ως παραπληρωματική της $30°$.

9. ① $\omega = 38°$ αφού Ox' διχοτόμος της $y\hat{O}y'$.
$\phi = 180° - 38° = 142°$ ως παραπληρωματική της ω.
② $\alpha = 90° - 30° = 60°$ ως συμπληρωματική της $30°$.
$\beta = 90°$
$\gamma = 30°$ ως κατακορυφήν της $30°$.

$\delta = 60°$ ως κατακορυφήν της α.

③ $\omega = 60°$ αφού $y\hat{O}x' = 2 \cdot 30° = 60°$.

$\phi = 180° - 60° = 120°$ ως παραπληρωματική της ω.

④ $x\hat{O}y = 180° - 80° = 100°$ ως παραπληρωματική της $80°$.

τότε $\omega = \phi = 100° : 2 = 50°$ αφού ΟΔ διχοτόμος.