

PGCD

Correction

1) Décompose en produit de nombres premiers en effectuant les divisions successives.

$$\begin{array}{r|l} 60 & 2 \\ 30 & 2 \\ 15 & 3 \\ 5 & 5 \\ 1 & \end{array}$$

$$\begin{array}{r|l} 90 & 2 \\ 45 & 3 \\ 15 & 3 \\ 5 & 5 \\ 1 & \end{array}$$

$$\begin{array}{r|l} 350 & 2 \\ 175 & 5 \\ 35 & 5 \\ 7 & 7 \\ 1 & \end{array}$$

$$\begin{array}{r|l} 252 & 2 \\ 126 & 2 \\ 63 & 3 \\ 21 & 3 \\ 7 & 7 \\ 1 & \end{array}$$

$$\begin{array}{r|l} 440 & 2 \\ 220 & 2 \\ 110 & 2 \\ 55 & 5 \\ 11 & 11 \\ 1 & \end{array}$$

$$\begin{array}{r|l} 675 & 3 \\ 225 & 3 \\ 75 & 3 \\ 25 & 5 \\ 5 & 5 \\ 1 & \end{array}$$

$$60 = 2 \times 2 \times 3 \times 5 = 2^2 \times 3 \times 5$$

$$90 = 2 \times 3 \times 3 \times 5 = 2 \times 3^2 \times 5$$

$$350 = 2 \times 5 \times 5 \times 7 = 2 \times 5^2 \times 7$$

$$252 = 2 \times 2 \times 3 \times 3 \times 7 = 2^2 \times 3^2 \times 7$$

$$440 = 2 \times 2 \times 2 \times 5 \times 11 = 2^3 \times 5 \times 11$$

$$675 = 3 \times 3 \times 3 \times 5 \times 5 = 3^3 \times 5^2$$

2) En utilisant les résultats précédents, détermine les PGCD suivants

a) PGCD (60; 90) = $2 \times 3 \times 5 = 30$

b) PGCD (350; 90) = $2 \times 5 = 10$

c) PGCD (252; 675) = $3^2 = 9$

d) PGCD (252; 60) = $2^2 \times 3 = 12$

e) PGCD (440; 90) = $2 \times 5 = 10$

f) PGCD (440; 252) = $2^2 = 4$

g) PGCD (440; 350) = $2 \times 5 = 10$

h) PGCD (440; 675) = 5