

Correction : Partie 4

Niveau 1 :

$$5 \div \frac{15}{3} = \frac{5 \times 3}{15} = \frac{\cancel{3} \times \cancel{5}}{\cancel{3} \times \cancel{5}} = 1 \quad ; \quad 6 \div \frac{18}{24} = \frac{6 \times 24}{18} = \frac{\cancel{2} \times \cancel{3} \times 2 \times \cancel{3} \times 2 \times 2}{\cancel{2} \times \cancel{3} \times \cancel{3}} = 8;$$

$$\frac{25}{28} \div \frac{14}{10} = \frac{25 \times 10}{28 \times 14} = \frac{5 \times 5 \times \cancel{2} \times 5}{2 \times 2 \times 7 \times \cancel{2} \times 7} = \frac{125}{196} \quad ; \quad \frac{26}{14} \div \frac{28}{39} = \frac{26 \times 39}{14 \times 28} = \frac{\cancel{2} \times 13 \times 3 \times 13}{\cancel{2} \times 7 \times 2 \times 2 \times 7} = \frac{507}{196};$$

Une erreur s'est glissée dans l'énoncé, il aurait été plus simple de calculer :

$$\frac{25}{28} \div \frac{10}{14} = \frac{25 \times 14}{28 \times 10} = \frac{5 \times \cancel{5} \times \cancel{2} \times \cancel{7}}{2 \times \cancel{2} \times \cancel{7} \times 5 \times 2} = \frac{5}{4} \quad \text{et} \quad \frac{26}{14} \div \frac{39}{28} = \frac{26 \times 28}{14 \times 39} = \frac{\cancel{2} \times \cancel{13} \times 2 \times \cancel{2} \times \cancel{7}}{\cancel{2} \times \cancel{7} \times 3 \times \cancel{13}} = \frac{4}{3}$$

$$\frac{56}{81} \div \frac{64}{14} = \frac{56 \times 14}{81 \times 64} = \frac{\cancel{2} \times 2 \times \cancel{2} \times 7 \times \cancel{2} \times 7}{3 \times 3 \times 3 \times 3 \times 2 \times 2 \times \cancel{2} \times \cancel{2} \times \cancel{2} \times \cancel{2}} = \frac{49}{324} \quad ; \quad \frac{42}{25} \div \frac{28}{75} = \frac{42 \times 75}{25 \times 28} = \frac{\cancel{2} \times 3 \times \cancel{7} \times 3 \times 5 \times 5}{5 \times \cancel{5} \times \cancel{2} \times 2 \times \cancel{7}} = \frac{9}{2}$$

$$\frac{51}{18} \div \frac{34}{36} = \frac{51 \times 36}{18 \times 34} = \frac{\cancel{3} \times \cancel{17} \times \cancel{2} \times 3 \times \cancel{2} \times \cancel{3}}{\cancel{2} \times \cancel{3} \times \cancel{3} \times \cancel{2} \times \cancel{17}} = 3 \quad ; \quad \frac{12}{15} \div \frac{1}{5} = \frac{12 \times 5}{15} = \frac{2 \times 2 \times 3 \times 5}{3 \times 5} = 4$$

$$\frac{15}{9} \div \frac{6}{10} = \frac{15 \times 10}{9 \times 6} = \frac{\cancel{3} \times 5 \times \cancel{2} \times 5}{3 \times \cancel{3} \times \cancel{3} \times 2} = \frac{25}{9} \quad ; \quad \frac{54}{12} \div \frac{18}{12} = \frac{54 \times 1}{12 \times 18} = \frac{\cancel{2} \times \cancel{3} \times \cancel{3} \times \cancel{3} \times 1}{2 \times 2 \times \cancel{3} \times \cancel{2} \times \cancel{3} \times \cancel{3}} = \frac{1}{4}$$

$$7 \div \frac{21}{3} = \frac{7 \times 3}{21} = \frac{7 \times 3}{3 \times 7} = 1; \quad 8 \div \frac{32}{12} = \frac{8 \times 16}{12 \times 32} = \frac{\cancel{2} \times \cancel{2} \times \cancel{2} \times \cancel{2} \times \cancel{2} \times \cancel{2}}{\cancel{2} \times \cancel{2} \times 3 \times \cancel{2} \times \cancel{2} \times \cancel{2} \times \cancel{2}} = 1; \quad \frac{63}{12} \div \frac{81}{14} = \frac{63 \times 12}{12 \times 81} = \frac{\cancel{3} \times \cancel{3} \times \cancel{7} \times \cancel{2} \times \cancel{2} \times \cancel{3}}{\cancel{2} \times \cancel{7} \times 3 \times \cancel{3} \times \cancel{3} \times \cancel{3}} = \frac{2}{3}$$

$$\frac{36}{15} \div \frac{54}{27} = \frac{36 \times 27}{15 \times 54} = \frac{\cancel{2} \times \cancel{3} \times \cancel{2} \times \cancel{3} \times \cancel{3} \times \cancel{3}}{\cancel{3} \times \cancel{5} \times \cancel{2} \times \cancel{3} \times \cancel{3} \times \cancel{3}} = \frac{6}{5} \quad ; \quad \frac{75}{125} \div \frac{56}{28} = \frac{75 \times 28}{125 \times 56} = \frac{\cancel{3} \times \cancel{5} \times \cancel{5} \times \cancel{2} \times \cancel{2} \times \cancel{7}}{5 \times \cancel{5} \times \cancel{5} \times 2 \times \cancel{2} \times \cancel{2} \times \cancel{7}} = \frac{3}{10}$$

Niveau 2 :

$$81 \div \frac{63}{24} = \frac{81 \times 24}{63} = \frac{3 \times 3 \times 3 \times \cancel{3} \times 2 \times 2 \times \cancel{2} \times \cancel{3}}{\cancel{3} \times 7 \times \cancel{3}} = \frac{216}{7} \quad ; \quad \frac{56}{125} \div \frac{21}{75} = \frac{56 \times 75}{125 \times 21} = \frac{2 \times 2 \times \cancel{2} \times \cancel{7} \times \cancel{3} \times \cancel{5} \times \cancel{5}}{\cancel{5} \times \cancel{5} \times \cancel{5} \times \cancel{3} \times \cancel{7}} = \frac{8}{5}$$

$$\frac{58}{36} \div \frac{27}{18} = \frac{58 \times 18}{36 \times 27} = \frac{\cancel{2} \times 29 \times \cancel{3} \times \cancel{3} \times \cancel{2}}{\cancel{2} \times 3 \times 2 \times 3 \times \cancel{3} \times \cancel{3}} = \frac{29}{27} \quad ; \quad \frac{42}{15} \div \frac{30}{25} = \frac{42 \times 25}{15 \times 30} = \frac{\cancel{2} \times \cancel{3} \times 7 \times \cancel{5} \times \cancel{5}}{3 \times \cancel{5} \times \cancel{2} \times \cancel{3} \times \cancel{5}} = \frac{7}{3}$$

$$\frac{70}{56} \div \frac{25}{64} = \frac{70 \times 64}{56 \times 25} = \frac{\cancel{7} \times \cancel{2} \times \cancel{5} \times 2 \times 2 \times 2 \times \cancel{2} \times \cancel{2} \times \cancel{2}}{\cancel{2} \times \cancel{2} \times \cancel{2} \times \cancel{7} \times 5 \times 5} = \frac{16}{5} \quad ; \quad 7 \div \frac{21}{9} = \frac{7 \times 9}{21} = \frac{\cancel{7} \times 3 \times 3}{3 \times 3 \times \cancel{3} \times \cancel{7}} = \frac{1}{7}$$

$$\frac{36}{24} \div \frac{35}{14} = \frac{36 \times 14}{24 \times 35} = \frac{\cancel{2} \times \cancel{3} \times \cancel{2} \times 3 \times \cancel{2} \times \cancel{7}}{\cancel{2} \times \cancel{3} \times \cancel{2} \times \cancel{2} \times 5 \times \cancel{7}} = \frac{3}{5} \quad ; \quad \frac{50}{12} \div \frac{15}{32} = \frac{50 \times 32}{12 \times 15} = \frac{5 \times \cancel{5} \times \cancel{2} \times \cancel{2} \times 2 \times 2 \times 2 \times 2}{\cancel{2} \times \cancel{3} \times 2 \times \cancel{3} \times \cancel{5}} = \frac{80}{9}$$

$$\frac{35}{28} \div \frac{75}{25} = \frac{35 \times 25}{28 \times 75} = \frac{5 \times \cancel{7} \times \cancel{5} \times \cancel{5}}{2 \times 2 \times \cancel{7} \times 3 \times \cancel{5} \times \cancel{5}} = \frac{5}{12} \quad ; \quad \frac{48}{45} \div \frac{16}{15} = \frac{48 \times 15}{45 \times 16} = \frac{\cancel{2} \times \cancel{2} \times \cancel{2} \times \cancel{2} \times \cancel{3} \times \cancel{3} \times \cancel{3} \times \cancel{5}}{\cancel{3} \times \cancel{5} \times \cancel{2} \times \cancel{2} \times \cancel{2} \times \cancel{2}} = \frac{9}{16}$$

$$18 \div \frac{16}{36} = 18 \times \frac{36}{16} = \frac{\cancel{2} \times 3 \times 3 \times \cancel{2} \times 3 \times \cancel{2} \times 3}{2 \times \cancel{2} \times \cancel{2} \times \cancel{2}} = \frac{81}{2} ; \frac{72}{20} \div \frac{36}{15} = \frac{72}{20} \times \frac{15}{36} = \frac{\cancel{2} \times \cancel{2} \times \cancel{2} \times 3 \times \cancel{3} \times \cancel{3} \times 5}{\cancel{2} \times \cancel{2} \times 5 \times \cancel{2} \times \cancel{3} \times 2 \times \cancel{3}} = \frac{3}{2}$$

$$\frac{42}{30} \div \frac{28}{115} = \frac{42}{30} \times \frac{115}{28} = \frac{\cancel{2} \times \cancel{3} \times \cancel{7} \times \cancel{5} \times 23}{2 \times \cancel{5} \times \cancel{3} \times 2 \times \cancel{2} \times \cancel{7}} = \frac{23}{4} ; \frac{125}{135} \div \frac{15}{25} = \frac{125}{135} \times \frac{25}{15} = \frac{\cancel{5} \times \cancel{5} \times 5 \times 5 \times 5}{\cancel{5} \times 3 \times 3 \times 3 \times 3 \times \cancel{5}} = \frac{125}{81}$$

$$\frac{24}{130} \div \frac{39}{16} = \frac{24}{130} \times \frac{16}{39} = \frac{\cancel{2} \times 2 \times 2 \times \cancel{3} \times 2 \times 2 \times 2 \times 2}{\cancel{2} \times 5 \times 13 \times \cancel{3} \times 13} = \frac{64}{845}$$

Niveau 3 :

56

$$\frac{64}{28} = \frac{56}{64} \div \frac{28}{32} = \frac{56}{64} \times \frac{32}{28} = \frac{\cancel{2} \times \cancel{2} \times \cancel{2} \times \cancel{7} \times \cancel{2} \times \cancel{2} \times \cancel{2} \times \cancel{2}}{\cancel{2} \times \cancel{2} \times \cancel{2} \times \cancel{2} \times \cancel{2} \times \cancel{2} \times \cancel{2} \times \cancel{7}} = 1$$

15

$$\frac{45}{16} = \frac{15}{45} \div \frac{16}{9} = \frac{15}{45} \times \frac{9}{16} = \frac{\cancel{3} \times \cancel{5} \times \cancel{3} \times 3}{\cancel{5} \times \cancel{3} \times \cancel{3} \times 2 \times 2 \times 2 \times 2} = \frac{3}{16} ; \frac{14}{24} = \frac{14}{30} \div \frac{24}{30} = \frac{14}{30} \times \frac{30}{24} = \frac{\cancel{2} \times 7 \times \cancel{2} \times 5 \times \cancel{3}}{\cancel{2} \times \cancel{2} \times \cancel{2} \times 3} = \frac{35}{2}$$

26

$$\frac{32}{39} = \frac{26}{32} \div \frac{39}{12} = \frac{26}{32} \times \frac{12}{39} = \frac{\cancel{2} \times \cancel{13} \times \cancel{2} \times \cancel{2} \times 3}{\cancel{2} \times \cancel{2} \times \cancel{2} \times 2 \times 2 \times \cancel{3} \times 13} = \frac{1}{4} ; \frac{25}{42} = \frac{25}{36} \div \frac{42}{10} = \frac{25}{36} \times \frac{10}{42} = \frac{5 \times 5 \times \cancel{2} \times 5}{\cancel{2} \times 3 \times 2 \times 3 \times 2 \times 3 \times 7} = \frac{125}{756}$$

24

$$\frac{28}{20} = \frac{24}{28} \div \frac{20}{14} = \frac{24}{28} \times \frac{14}{20} = \frac{\cancel{2} \times \cancel{2} \times \cancel{2} \times 3 \times \cancel{2} \times \cancel{7}}{\cancel{2} \times 7 \times \cancel{2} \times \cancel{2} \times \cancel{2} \times 5} = \frac{3}{5} ; \frac{14}{8} = \frac{35}{14} \div \frac{8}{14} = \frac{35}{14} \times \frac{1}{8} = \frac{\cancel{7} \times 5}{2 \times \cancel{7} \times 2 \times 2 \times 2} = \frac{5}{16}$$

22

$$\frac{36}{11} = \frac{22}{36} \div \frac{11}{36} = \frac{22}{36} \times \frac{36}{11} = \frac{\cancel{2} \times \cancel{11}}{\cancel{2} \times 3 \times 2 \times 3 \times \cancel{11}} = \frac{1}{18} ; \frac{18}{15} = \frac{42}{18} \div \frac{15}{35} = \frac{42}{18} \times \frac{35}{15} = \frac{2 \times 3 \times 7 \times 7 \times 5}{2 \times 3 \times 3 \times 3 \times 5} = \frac{49}{9}$$

42

$$\frac{18}{21} = \frac{42}{18} \div \frac{21}{49} = \frac{42}{18} \times \frac{49}{21} = \frac{2 \times 3 \times 7 \times 7 \times 7}{2 \times 3 \times 3 \times 3 \times 7} = \frac{49}{9} ; \frac{45}{16} = \frac{72}{45} \div \frac{16}{45} = \frac{72}{45} \times \frac{1}{16} = \frac{\cancel{2} \times \cancel{2} \times \cancel{3} \times \cancel{2} \times \cancel{3}}{\cancel{3} \times \cancel{3} \times 5 \times \cancel{2} \times \cancel{2} \times 2} = \frac{1}{10}$$

30

$$\frac{50}{36} = \frac{30}{50} \div \frac{36}{24} = \frac{30}{50} \times \frac{24}{36} = \frac{\cancel{3} \times \cancel{2} \times \cancel{5} \times \cancel{2} \times \cancel{2} \times 3 \times 2}{5 \times \cancel{2} \times \cancel{5} \times \cancel{2} \times \cancel{3} \times \cancel{2} \times \cancel{3}} = \frac{2}{5} ; \frac{32}{27} = \frac{39}{32} \div \frac{27}{18} = \frac{39}{32} \times \frac{18}{27} = \frac{3 \times 13 \times \cancel{2} \times \cancel{3} \times \cancel{3}}{2 \times 2 \times 2 \times 2 \times \cancel{3} \times \cancel{3} \times \cancel{3}} = \frac{13}{16}$$

40

$$\frac{36}{56} = \frac{40}{36} \div \frac{56}{14} = \frac{40 \times 14}{36 \times 56} = \frac{\cancel{2} \times \cancel{2} \times \cancel{2} \times 5 \times \cancel{2} \times \cancel{7}}{\cancel{2} \times 3 \times \cancel{2} \times 3 \times \cancel{2} \times \cancel{2} \times 7} = \frac{5}{18} ; \frac{28}{12} = 28 \div \frac{12}{26} = 28 \times \frac{26}{12} = \frac{\cancel{2} \times \cancel{2} \times 7 \times 2 \times 13}{\cancel{2} \times \cancel{2} \times 3} = \frac{182}{3}$$

33

$$\frac{21}{27} = \frac{33}{21} \div \frac{27}{7} = \frac{33 \times 7}{21 \times 27} = \frac{\cancel{3} \times 11 \times \cancel{7}}{\cancel{3} \times \cancel{7} \times 3 \times 3 \times 3} = \frac{11}{27} ; \frac{60}{34} = \frac{75}{60} \div \frac{34}{51} = \frac{75 \times 51}{60 \times 34} = \frac{\cancel{5} \times 5 \times \cancel{3} \times \cancel{3} \times 17}{\cancel{2} \times \cancel{3} \times 2 \times 5 \times \cancel{2} \times 17} = \frac{15}{8}$$

46

$$\frac{27}{42} = \frac{46}{27} \div \frac{14}{42} = \frac{46 \times 42}{27 \times 14} = \frac{\cancel{2} \times 23 \times \cancel{2} \times \cancel{3} \times \cancel{7}}{3 \times 3 \times \cancel{3} \times \cancel{2} \times \cancel{7}} = \frac{46}{9} ; \frac{64}{72} = \frac{63}{64} \div \frac{72}{24} = \frac{63 \times 24}{64 \times 72} = \frac{\cancel{3} \times \cancel{3} \times 7 \times \cancel{2} \times \cancel{2} \times \cancel{2} \times 3}{\cancel{2} \times \cancel{2} \times \cancel{2} \times 2 \times 2 \times 2 \times 2 \times 3 \times 2 \times 3} = \frac{21}{64}$$

65

$$\frac{48}{75} = \frac{65}{48} \div \frac{75}{64} = \frac{65 \times 64}{48 \times 75} = \frac{\cancel{5} \times 13 \times \cancel{2} \times \cancel{2} \times \cancel{2} \times \cancel{2} \times \cancel{2} \times \cancel{2}}{\cancel{2} \times \cancel{2} \times \cancel{2} \times 3 \times 3 \times 5 \times 5} = \frac{52}{45} ; \frac{294}{189} = \frac{175}{294} \div \frac{189}{147} = \frac{175 \times 147}{294 \times 189} = \frac{5 \times 5 \times \cancel{7} \times \cancel{3} \times \cancel{7} \times \cancel{7}}{2 \times 3 \times \cancel{7} \times \cancel{7} \times 3 \times 3 \times \cancel{3} \times \cancel{7}} = \frac{25}{54}$$

243

$$\frac{162}{168} = \frac{243}{162} \div \frac{168}{108} = \frac{243 \times 108}{162 \times 168} = \frac{\cancel{3} \times \cancel{3} \times \cancel{3} \times \cancel{3} \times \cancel{3} \times \cancel{2} \times \cancel{2} \times 3 \times 3 \times 3}{\cancel{2} \times \cancel{3} \times \cancel{3} \times \cancel{3} \times \cancel{2} \times \cancel{2} \times 3 \times 7} = \frac{27}{28} ; \frac{182}{182} = \frac{195}{182} \div 210 = \frac{195 \times 1}{182 \times 210} = \frac{5 \times \cancel{3} \times \cancel{13}}{2 \times \cancel{13} \times 7 \times 2 \times 5 \times \cancel{3} \times 7} = \frac{1}{196}$$

175

$$\frac{75}{182} = \frac{175}{75} \div \frac{182}{78} = \frac{175 \times 78}{75 \times 182} = \frac{\cancel{5} \times \cancel{5} \times \cancel{7} \times \cancel{2} \times \cancel{3} \times 13}{\cancel{3} \times \cancel{5} \times \cancel{5} \times \cancel{2} \times \cancel{7} \times 13} = 1 ; \frac{270}{165} = \frac{220}{270} \div \frac{165}{216} = \frac{220 \times 216}{270 \times 165} = \frac{\cancel{2} \times \cancel{11} \times 2 \times 5 \times 2 \times 2 \times \cancel{3} \times \cancel{3} \times 3}{\cancel{2} \times \cancel{5} \times \cancel{3} \times \cancel{3} \times 3 \times 5 \times 11} = \frac{16}{15}$$