CORRECTION DM du 22 mai 2012.

ex 3 p34 :

1) $A = (3\sqrt{2} + 5)^2$
$= (3\sqrt{2})^2 + 2 \times 3\sqrt{2} \times 5 + 5^2$
$= 9 \times 2 + 30\sqrt{2} + 25$
$= 18 + 25 + 30\sqrt{2}$
$= \boxed{43 + 30\sqrt{2}}$

2) $B = (\sqrt{7} + 3)(\sqrt{7} - 3)$
$= (\sqrt{7})^2 - 3^2$
$= 7 - 9$
$= \boxed{-2}$

ex 2 p75 :

1) $A = \dfrac{6}{5} - \dfrac{17}{14} \div \dfrac{5}{7}$
$A = \dfrac{6}{5} - \dfrac{17}{14} \times \dfrac{7}{5}$
$A = \dfrac{6 \times 14}{5 \times 14} - \dfrac{119}{70}$
$A = \dfrac{84}{70} - \dfrac{119}{70}$
$A = -\dfrac{35}{70}$
$A = \boxed{-\dfrac{1}{2}}$

2) $B = \dfrac{8 \times 10^8 \times 1,6}{0,4 \times 10^{-3}}$
$B = \dfrac{12,8 \times 10^8}{0,4 \times 10^{-3}}$
$B = 32 \times 10^{11}$
$B = \boxed{3,2 \times 10^{12}}$

3) $C = (\sqrt{5} + \sqrt{10})^2 - 10\sqrt{2}$
$C = (\sqrt{5})^2 + 2\sqrt{5}\sqrt{10} + (\sqrt{10})^2 - 10\sqrt{2}$
$C = 5 + 2\sqrt{50} + 10 - 10\sqrt{2}$
$C = 15 + 2\sqrt{25 \times 2} + 10 - 10\sqrt{2}$
$C = 15 + 2 \times 5\sqrt{2} + 10 - 10\sqrt{2}$
$C = 15 + 10\sqrt{2} + 10 - 10\sqrt{2}$
$\boxed{C = 25}$

ex 2 p 86

1) $B = 4c \cdot \dfrac{1+\sqrt{2}}{2}$
$B = 4 \times \dfrac{(1+\sqrt{2})}{2}$
$B = 2(1+\sqrt{2})$
$\boxed{B = 2 + 2\sqrt{2}}$

2) $\mathscr{A} = c^2 = \left(\dfrac{1+\sqrt{2}}{2}\right)^2$
$\mathscr{A} = \dfrac{(1+\sqrt{2})^2}{2^2}$
$\mathscr{A} = \dfrac{1 + 2\sqrt{2} + 2}{4} = \dfrac{3 + 2\sqrt{2}}{4}$
$\boxed{\mathscr{A} = \dfrac{3}{4} + \dfrac{\sqrt{2}}{2}}$

3) ABC est un tr. rect. en B.
On peut écrire l'égalité de Pythagore :
$AC^2 = AB^2 + BC^2$
$AC^2 = c^2 + c^2$
$AC^2 = 2c^2$
$AC = \sqrt{2c^2}$ car $AC > 0$
$AC = \sqrt{2} \times c$
$AC = \sqrt{2} \times \dfrac{(3 + \sqrt{2})}{2}$
$AC = \dfrac{3\sqrt{2}}{2} + \dfrac{2}{2}$
$AC = 1 + \dfrac{3}{4}\sqrt{2}$
$n = \dfrac{AC}{2} = \dfrac{1}{2}(1 + \dfrac{3}{4}\sqrt{2}) = \dfrac{1}{2} + \dfrac{3}{8}\sqrt{2}$

ex 1 p107

1a) $A = 2 + 10^{-9}$
b) $B = 2 - 10^{-9}$

2a) $A + B = 4$
b) $A + B = 2 + 10^{-9} + 2 - 10^{-9}$
$= \boxed{4}$

3a) $A - B = 0$
b) $A - B = 2 + 10^{-9} - 2 + 10^{-9}$
$= \boxed{2 \times 10^{-9}}$

4a) $A \times B = 4$
b) $A \times B = (2 + 10^{-9})(2 - 10^{-9})$
$= 2^2 - (10^{-9})^2$
$= \boxed{4 - 10^{-18}}$

La calculatrice me donne pas la vraie valeur.

ex 2 p 107

1) $A = (\sqrt{3}+\sqrt{5})(\sqrt{5}-3)$
$A = \dfrac{\sqrt{3}\sqrt{5} - 3\sqrt{3} + 5\sqrt{5} - 15}{4}$
$A = \dfrac{\sqrt{15} - 3\sqrt{3}\sqrt{5} + 5\sqrt{5}\sqrt{5} - 15}{4}$
$A = \dfrac{\sqrt{225} - 3 \times 15\sqrt{5} + 5\sqrt{5}\cdot 15 - 15}{4}$
$A = \dfrac{15 - 9\sqrt{5} + 5\sqrt{5} \cdot 15 - 15}{4}$
$A = \dfrac{-4\sqrt{5}}{4}$ donc $\boxed{A = -\sqrt{5}}$

$B = \left(\sqrt{\dfrac{5}{3}}\right)^2 - \left(\sqrt{\dfrac{3}{5}}\right)^2$
$B = \left(\sqrt{\dfrac{5}{3}}\right)^2 - 2\sqrt{\dfrac{5}{3}}\sqrt{\dfrac{3}{5}} + \left(\sqrt{\dfrac{3}{5}}\right)^2$
$B = \dfrac{5}{3} - 2\sqrt{\dfrac{5}{3}\cdot\dfrac{3}{5}} + \dfrac{3}{5}$
$B = \dfrac{25}{15} - 2 + \dfrac{9}{15}$
$B = \dfrac{34}{15} - \dfrac{30}{15}$
$\boxed{B = \dfrac{4}{15}}$

Correction C (en haut) :

$C = \dfrac{\sqrt{5}}{6} \times (\sqrt{3}-\sqrt{2})(\sqrt{3}+\sqrt{2})$
$C = \dfrac{\sqrt{5}}{6} \times ((\sqrt{3})^2 - (\sqrt{2})^2)$
$C = \dfrac{\sqrt{5}}{6} \times (19 - 18) = \dfrac{\sqrt{5}}{6} \times 6 = \boxed{\sqrt{5} = C}$

$D = \left(\dfrac{1}{3} + \dfrac{1}{5}\right) + \left(\dfrac{2}{5} \times \dfrac{1}{3}\right) + \left(\dfrac{1}{3} \div \dfrac{1}{5}\right)$
$D = \left(\dfrac{5}{15} + \dfrac{3}{15}\right) + \dfrac{2}{15} + \dfrac{1}{3} \times \dfrac{5}{1}$
$D = \dfrac{8}{15} + \dfrac{22}{15} + \dfrac{11}{15}$
$\boxed{D = \dfrac{41}{15}}$

$A + B + C + D = -\sqrt{5} + \dfrac{4}{15} + \sqrt{5} + \dfrac{41}{15} = \dfrac{45}{15} = 3$
$A + B + C + D$ est bien un entier.

ex 3 p 107

1) $r = \dfrac{1}{20} = 0,05.$ (1 chance sur 20).

2) $r = \dfrac{10}{20} = 0,5$ (1 chance sur 2)

3) $3, 6, 9, 12, 15, 18 \rightarrow 6$ boules
$r = \dfrac{6}{20} = 0,3$ (3 chances sur 10).

4) $2; 3; 5; 7; 11; 13; 17; 19 \rightarrow 8$ boules.
$r = \dfrac{8}{20} = 0,4$
(Si on considère que 1 est premier, $\dfrac{9}{20}$)

ex 4 p111

1) $A = 3\sqrt{3} \times 2\sqrt{3} - 2\sqrt{81} - 7\sqrt{105}$
$A = 6\sqrt{525} - 2\sqrt{25 \times 21} - 7\sqrt{105}$
$A = 6\sqrt{25}\sqrt{21} - 2 \times 2\sqrt{21} - 7\sqrt{21}$
$A = 6 \times 5\sqrt{21} - 4\sqrt{21} - 7\sqrt{21}$
$A = 30\sqrt{21} - 11\sqrt{21} = \boxed{19\sqrt{21}}$

2) a) $B + C = (2x-3)(2x-3) + (2x-3)(-5x+2)$
$= (2x-3)[(2x-3) + (-5x+2)]$
$= (2x-3)(-3x-1)$

b) Eq² pdt : $x = \dfrac{3}{2}$ et $x = -\dfrac{1}{3}$

3) $D = \dfrac{2^{-3} \times (2^3)^5}{(2^4)^3 \times (2^4)^2} = \dfrac{2^{-3} \times 2^{15}}{2^{12} \times 2^8} = \dfrac{2^{12}}{2^{14}} = 2^{-2}$

ex 1 p111 (suite)

4) Non.
• $20 \times (1 - \dfrac{5}{100}) = 19$
Il diminue de 5% d'abord 19€.
• $19 \times (1 + \dfrac{5}{100}) = 19,95$
Son nouveau prix est 19,95€.
On ne retombe pas sur 20€.