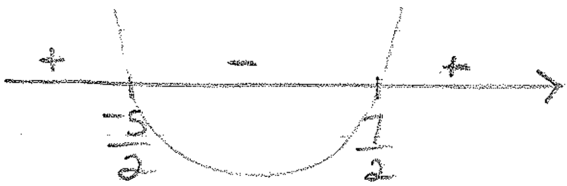
p.147–151 (Vision)

③ c) $(4x+10)(2x-7) \leq 0$

racines : $4x+10=0$ $\quad$ $2x-7=0$

$x = -\frac{10}{4}$ ou $-\frac{5}{2}$ $\quad$ $x = \frac{7}{2}$



$[-5/2,\ 7/2]$

d) $x^2 - 64 > 0$

racines : $x^2 - 64 = 0$

$x^2 = 64$

$x = \pm 8$

$]-\infty, -8[\ \cup\ ]8, +\infty[$

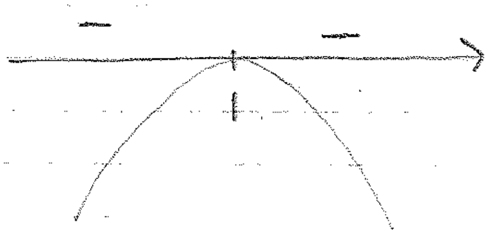
e) $-x^2 + 2x - 1 < 0$

racines : $-x^2 + 2x - 1 = 0$

$x^2 - 2x + 1 = 0$

$(x-1)(x-1) = 0$

$x = 1$



$]-\infty, 1[\ \cup\ ]1, +\infty[$

h) $x(x+6)+9 \geq 16$

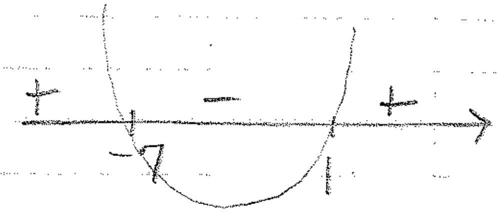
$x^2+6x+9-16 \geq 0$

$x^2+6x-7 \geq 0$

racines : $x^2+6x-7=0$

$(x+7)(x-1)=0$

$x=-7 \quad x=1$



$]-\infty, -7] \cup [1, +\infty[$

i) $(x-1)(x+2) > 4$

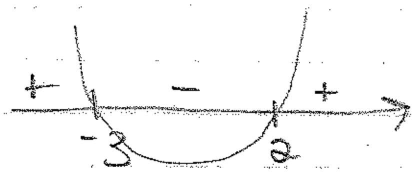
$x^2+2x-1x-2-4 > 0$

$x^2+x-6 > 0$

racines : $x^2+x-6=0$

$(x+3)(x-2)=0$

$x=-3 \quad x=2$



$]-\infty, -3[\cup]2, +\infty[$

(5) $P(x) = 0{,}0005x^2 - 0{,}045x + 1{,}25$

a) $0{,}0005x^2 - 0{,}045x + 1{,}25 > 1/2$

$0{,}0005x^2 - 0{,}045x + 0{,}75 > 0$

racines : $(0{,}0005x^2 - 0{,}045x + 0{,}75 = 0) \times 10000$

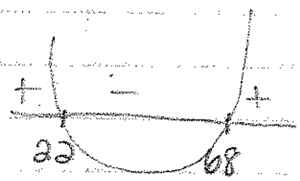
$(5x^2 - 450x + 7500 = 0) \div 5$

$x^2 - 90x + 1500 = 0$

$x = \dfrac{90 \pm \sqrt{8100-6000}}{2}$

$x = \dfrac{90 \pm \sqrt{2100}}{2}$

$x = \dfrac{90+\sqrt{2100}}{2} = 67{,}9 \qquad x = \dfrac{90-\sqrt{2100}}{2} = 22{,}09$



Les personnes âgées de 22ans et moins et 68ans plus.

b) $0{,}20 > 0{,}0005x^2 - 0{,}045x + 1{,}25$

$0 > 0{,}0005x^2 - 0{,}045x + 1{,}05$

racines: $0 = 5x^2 - 450x + 10500$

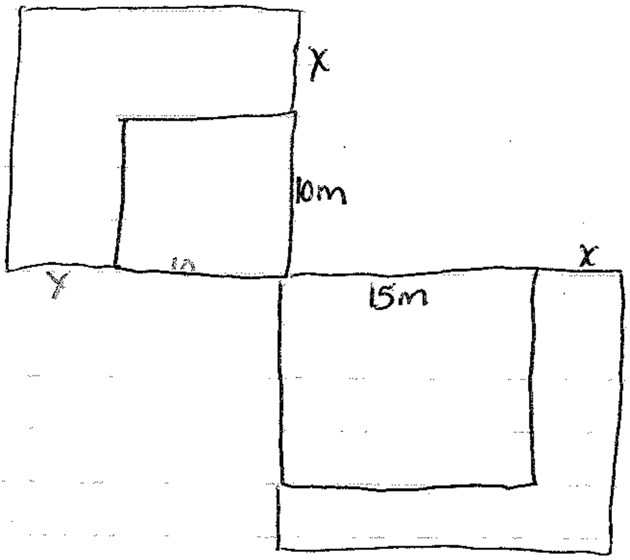
$0 = x^2 - 90x + 2100$

$x = \frac{90 \pm \sqrt{8100 - 8400}}{2}$

$x = \frac{90 \pm \sqrt{-400}}{2}$ impossible

il est impossible d'obtenir ce rabais !

(7)



restrictions

$x > 0$

$10 + x > 0$

$x > -10$

$15 + x > 0$

$x > -15$

$\rightarrow]0, +\infty[$

$A_T = (10+x)(10+x) + (15+x)(15+x)$

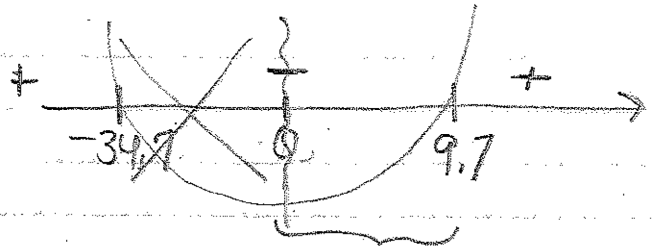
$1000 \geq 100 + 20x + x^2 + 225 + 30x + x^2$

$0 \geq 2x^2 + 50x + 325 - 1000$

$0 \geq 2x^2 + 50x - 675$

racines: $2x^2 + 50x - 675 = 0$

$x = \frac{-50 \pm \sqrt{2500 + 5400}}{4}$ $\rightarrow$ $x = \frac{-50 + \sqrt{7900}}{4} = 9{,}7$ $\quad$ $x = \frac{-50 - \sqrt{7900}}{4} = \cancel{-34{,}7}$



$$]\,0,\ 9{,}7]$$

Cet nouvel ajout peut mesurer entre 0 m et 9,7 m

(13) $h(t) = -4{,}9t^2 + 4{,}6t + 1{,}2$

a) $h(0) = 1{,}2$ La hauteur du centre de gravité de l'athlète lorsqu'il est debout.

b) $k = \dfrac{4ac - b^2}{4a} = \dfrac{4(-4{,}9)(1{,}2) - (4{,}6)^2}{4(-4{,}9)}$

$= \dfrac{-23{,}52 - 21{,}16}{-19{,}6}$

$= \dfrac{-44{,}68}{-19{,}6}$

$= 2{,}28$

Jim a atteint une hauteur maximale de 2,28 m.

c) $2{,}10 < -4{,}9t^2 + 4{,}6t + 1{,}2$

$0 < -4{,}9t^2 + 4{,}6t - 0{,}9$

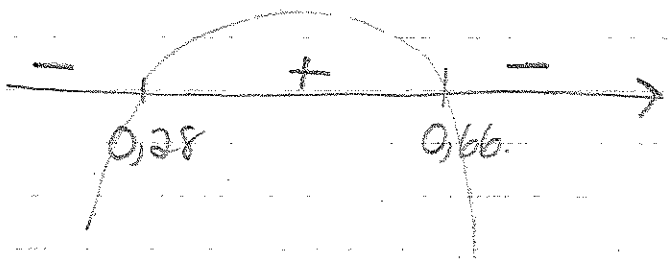
racines: $4{,}9t^2 - 4{,}6t + 0{,}9 = 0$

$$t = \frac{4{,}6 \pm \sqrt{21{,}16 - 17{,}64}}{9{,}8}$$

$$= \frac{4{,}6 \pm \sqrt{3{,}52}}{9{,}8}$$

$$t = \frac{4{,}6 + \sqrt{3{,}52}}{9{,}8} \qquad t = \frac{4{,}6 - \sqrt{3{,}52}}{9{,}8}$$

$$= 0{,}66 \qquad\qquad = 0{,}28$$



$$]0{,}28,\ 0{,}66[$$

Le centre de gravité de Jim se trouvait au-dessus de 2,10 m pendant 0,38 seconde soit entre 0,28 s et 0,66 s.