



Test in/ Examen de : Math

Name/Le nom : _____

Class/ La Classe: Gr 9

Time / La durée : 2009-2010

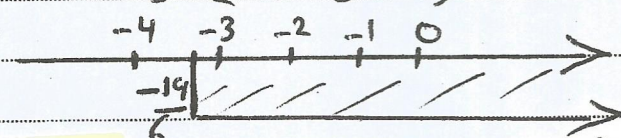
Date / La date: Monday 17/5/2010

Ex 1 1) $a^2 + \frac{1}{a^2} = (\sqrt{2+\sqrt{3}})^2 + \frac{1}{(\sqrt{2+\sqrt{3}})^2} = (2+\sqrt{3}) + \frac{1}{(2+\sqrt{3})}$
 $= \frac{(2+\sqrt{3})^2 + 1}{(2+\sqrt{3})} = \frac{4+2\sqrt{3}+3+1}{(2+\sqrt{3})} = \frac{8+2\sqrt{3}}{2+\sqrt{3}} = \frac{4(2+\sqrt{3})}{2+\sqrt{3}} = 4 = 2^2$

is a perfect square integer (1pt)

2) $\frac{3x+2}{5} - \frac{2x+1}{3} \leq \frac{x+4}{3}$ no $\frac{3(3x+2) - 5(2x+1)}{15} \leq \frac{5(x+4)}{15}$

$9x+6-10x-5 \leq 5x+20$ no $9x-10x-5 \leq 20-6+5$ no $-6x \leq 19$
 $6x \geq -19$ no $x \geq \frac{-19}{6}$



So the negative integers are -3, -2, -1, 0. (1pt)

3) Part of the students who failed is $\frac{1-5}{8} = \frac{3}{8}$
 the % of these students $\frac{1}{3/8} = \frac{100\%}{x}$ no $x = \frac{3}{8} \times 100 = 37.5\%$
 (1pt)

4) since α and β are complementary angles so $\cos \alpha = \sin \beta$
 and $\sin \alpha = \cos \beta$ so
 $\sqrt{\cos^2 \alpha + \sin^2 \alpha} - 2 \sqrt{\sin \alpha - \sin \alpha + 4} = 1 - 4 = -3$ (1pt)

5) since the two Δ s are similar (given) so ratio of similarity
 $\frac{ABC}{DFE} : \frac{AB}{DF} = \frac{BC}{FE} = \frac{AC}{DE}$ no $\frac{2x+y}{42.5} = \frac{2}{1} = \frac{5x+3y}{110}$

$\begin{cases} \frac{2x+y}{42.5} = \frac{2}{1} \\ \frac{5x+3y}{110} = \frac{2}{1} \end{cases}$ no $\begin{cases} 2x+y=85 \\ 5x+3y=220 \end{cases}$ $\begin{cases} x=35 \\ y=15 \end{cases}$ (1pt)

6) $\vec{AB} + \vec{EC} - \vec{EB} - \vec{CA} = \vec{AB} + \vec{BE} + \vec{EC} + \vec{AC} = \vec{AC} + \vec{AC} = 2\vec{AC}$ (1pt)