Math Challenger 2

1)
$$\left(\frac{3x+4}{5x+1}\right)^{2} + \frac{3x+4}{5x+1} = 12$$
 $\left(\frac{3x+4}{5x+1}\right)^{2} + \frac{3x+4}{5x+1} - 12 = 0$

$$a^2 + a - 12 = 0$$
 $a = 4$ or 3 $(a + 4)(a - 3) = 0$

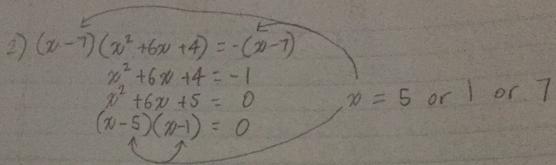
$$\frac{3x+4}{5x+1} = -4$$

$$3x+4 = -4(5x+1)$$

$$3\%+4=-20\%-4$$

 $23\%=-8$
 $\%=-\frac{9}{23}$

$$11. \quad \frac{3x+4}{5x+1} = 3$$



3) If there are 10 children, you have 9 siblings (excluding

5 more brothers than sisters.

7 brothers

2 sisters

Since each of your brothers have 7 brothers too, that means you identify as make as well.

.. there are 8 brothers and 2 sisters

$$20000(\frac{20001 \cdot 20002}{2}) = 20000 \cdot 2000) \cdot 20002 = 2$$
 $20001(\frac{20000 \cdot 2000}{2}) = 20000 \cdot 2000$

$$\frac{20001(\frac{20000 \cdot 2000)}{2} = 20000 \cdot 20001 \cdot 20001 + 2}{A > 0}$$

5)
$$4^{2x-3} = 4^{0.5}$$

 $2x-3 = 0.5$

Math Challenger 2

(
$$x^2 - 10x + 12^2$$
) = 144

 $x^2 - 10x + 12^2 = -12$
 $x^2 - 10x + 12^2 = -12$
 $x^2 - 10x + 12^2 = 0$
 $(x - 6)(x - 4) = 0$
 $(x - 6)(x - 4) = 0$
 $(x - 6)(x - 10) = 0$

($x - 10$

($x - 1$

7)
$$4^{27} + 4^{27} + 4^{27} + 4^{27} = 4^{(9-1)}$$

 $4(4^{27}) = 4^{(9-1)}$
Multiplication $(4^{1} \cdot 4^{27} = 4^{(9-1)})$
Exponant Rule $(4^{1} \cdot 4^{27} = 4^{(9-1)})$
 $(4^{1} \cdot 4^{27} = 4^{(9-1)})$
 $(4^{1} \cdot 4^{27} = 4^{(9-1)})$
 $(4^{1} \cdot 4^{27} = 4^{(9-1)})$

$$y-1 = 28$$

 $y = 29$

8) (1)(1)(1)=1, 1'=1
$$\checkmark$$

(1)(1)(1)=1, (-1)'=-1 \checkmark
(3)(3)(3)=27, 3=27, \checkmark
(3)(-3)(-3)=-27, \checkmark 3)'=-27 \checkmark