HW due fmw!!

Test tomorrow!!

- FOILing (distributive property)
  - 50 min
  - 50+ questions
    - no work needed
    - only answers
    - no calculators !!

$\frac{x}{50}$

- $(a+b)(c+d) = ac + ad + bc + bd$
- $(x+2)(x+7) = x^2 + 9x + 14$

$2x$ $+14$

$x^2 + 7x$

$(x+-2)(x+7) = x^2+5x-14$

$(1x+a)(1x+b) = x^2+(a+b)x$
$+ab$

$(x+-2)(x+2) = x^2-4$
$a \quad -b \quad a+b$

$(a+b)(a-b) = a^2-b^2$

$(x-y)(x+y) = x^2-y^2$

$(x+\sqrt{2023})(x-\sqrt{2023})$

$\hookrightarrow x^2-(\sqrt{2023})^2 = x^2-2023$

$$\left(\sqrt{2023}-\sqrt{7}\right)\left(\sqrt{2023}+\sqrt{7}\right)$$

$$\hookrightarrow \left(\sqrt{2023}\right)^2-\left(\sqrt{7}\right)^2$$

$$2023-7=2016$$

$$(2023-x)(2023+x)$$

$$\hookrightarrow \boxed{2023^2-x^2}$$

$$\left(\sqrt{2}+\sqrt{3}\right)^2=\left(\sqrt{2}+\sqrt{3}\right)\left(\sqrt{2}+\sqrt{3}\right)$$

$$(\sqrt{2})^2 + \sqrt{2}\sqrt{3} + \sqrt{3}\sqrt{2} + \sqrt{3}^2$$

$$2 + 3 + \sqrt{2}\sqrt{3} + \sqrt{2}\sqrt{3}$$

$$\boxed{5 + 2 \cdot \sqrt{2}\sqrt{3}}$$

$$\left(\sqrt{2023} - 1\right)^2 =$$

$$\left(\sqrt{2023} - 1\right)\left(\sqrt{2023} - 1\right)$$

$$\left(\sqrt{2023}\right)^2 - \sqrt{2023} - \sqrt{2023} + 1$$

$$\Rightarrow 2023 - 2\sqrt{2023} + 1$$

$2024 - 2\sqrt{2023}$

simplify the following:

① $(x-6)^2 = x^2 + -12x + 36$

② $(x-7)(x+7) = x^2 - 49$

③ $-(x-7)(x-8) =$

$(-x+7)(x-8) \longrightarrow -x^2 + 15x - 56$

④ $(2x+\sqrt{5})(2x-\sqrt{5}) =$

$4x^2 + 2x(-\sqrt{5}) + 2x\sqrt{5} + -(\sqrt{5})^2$

$4x^2 - 5$

⑤ $(7 + 2\sqrt{x})(3\sqrt{x} - 5)$

$21\sqrt{x} - 35 + 6\sqrt{x}\cdot\sqrt{x} - 10\sqrt{x}$

$\rightarrow \boxed{11\sqrt{x} - 35 + 6x}$