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| **Algebraic Proof**  |
| **(a)** | **(b)** | **(c)** |
| Show that$$3x\left(x+5\right)+2x(x-5)≡5x(x+1)$$ | Show that$$\left(x+6\right)\left(x-2\right)+12≡x(x+4)$$ | Show that $$(x-4)^{2}+6x-16≡x(x-2)$$ |
| **(d)** | **(e)** | **(f)** |
| Show that$$3\left(8-x\right)+2\left(5x-6\right)≡ax+b$$where $a$ and $b$ are integers to be found | Show that$$\left(x+5\right)\left(x-3\right)-x\left(x-8\right)≡ax+b$$where $a$ and $b$ are integers to be found | Show that $$\left(x+6\right)^{2}+4\left(x-9\right)≡x\left(x+a\right)$$where $a$ is an integer to be found |
| **(g)** | **(h)** | **(i)** |
| Show that$$\left(2x+5\right)\left(x-1\right)+3\left(5-x\right)=ax^{2}+b$$where $a$ and $b$ are integers to be found | Show that$$(x+4)^{2}+\left(x+2\right)\left(x-8\right)=ax(x+b)$$where $a$ and $b$ are integers to be found | Show that$$(3x+4)^{2}-(5x+8)(x+2)≡ax(bx+c)$$where $a$ and $b$ are integers to be found |