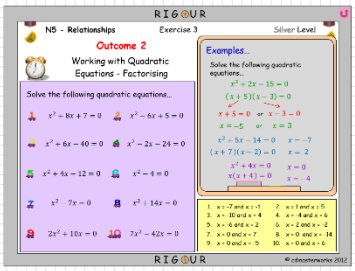
Silver Outcome 1 – Graphically

No solutions required.

Silver Outcome 2 – By factorising



① $x^2+8x+7=0$
$(x+7)(x+1)=0$
$x+7=0$ $x+1=0$
$x=-7$ $x=-1$

② $x^2-6x+5=0$
$(x-1)(x-5)=0$
$x-1=0$ $x-5=0$
$x=1$ $x=5$

③ $x^2+6x-40=0$
$(x+10)(x-4)=0$
$x+10=0$ $x-4=0$
$x=-10$ $x=4$

④ $x^2-2x-24=0$
$(x-6)(x+4)=0$
$x-6=0$ $x+4=0$
$x=6$ $x=-4$

⑤ $x^2+4x-12=0$
$(x+6)(x-2)=0$
$x+6=0$ $x-2=0$
$x=-6$ $x=2$

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

⑦ $x^2-7x=0$
$x(x-7)=0$
$x=0$ $x-7=0$
$x=0$ $x=7$

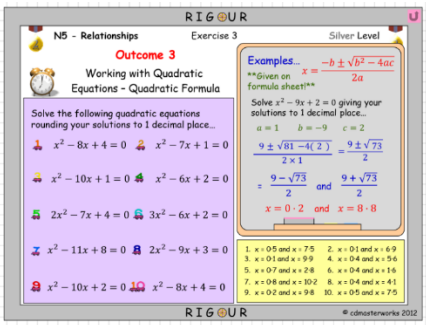
⑧ $x^2+14x=0$
$x(x+14)=0$
$x=0$ $x+14=0$
$x=0$ $x=-14$

⑨ $2x^2+10x=0$
$2x(x+5)=0$
$2x=0$ $x+5=0$
$x=0$ $x=-5$

⑩ $7x^2-42x=0$
$7x(x-6)=0$
$7x=0$ $x-6=0$
$x=0$ $x=6$

Rigour Maths

Silver Outcome 3 – By using the quadratic formula



① $a=1$ $b=-8$ $c=4$
$\frac{8\pm\sqrt{64-4(1)(4)}}{2\times1}$
$=\frac{8\pm\sqrt{48}}{2}$
$=\frac{8-\sqrt{48}}{2}$ and $\frac{8+\sqrt{48}}{2}$
$x=0.5$ and $x=7.5$

$a=1$ $b=-7$ $c=1$
$\frac{7\pm\sqrt{49-4(1)(1)}}{2\times1}$
$=\frac{7\pm\sqrt{45}}{2}$
$=\frac{7-\sqrt{45}}{2}$ and $\frac{7+\sqrt{45}}{2}$
$x=0.1$ and $x=6.9$

③ $a=1$ $b=-10$ $c=1$
$\frac{10\pm\sqrt{100-4(1)(1)}}{2\times1}$
$=\frac{10\pm\sqrt{96}}{2}$
$=\frac{10-\sqrt{96}}{2}$ and $\frac{10+\sqrt{96}}{2}$
$x=0.1$ and $x=9.9$

④ $a=1$ $b=-6$ $c=2$
$\frac{6\pm\sqrt{36-4(1)(2)}}{2\times1}$
$=\frac{6\pm\sqrt{28}}{2}$
$=\frac{6-\sqrt{28}}{2}$ and $\frac{6+\sqrt{28}}{2}$
$x=0.4$ and $x=5.6$

⑤ $a=2$ $b=-7$ $c=4$
$\frac{7\pm\sqrt{49-4(8)(2)}}{2\times2}$
$=\frac{7\pm\sqrt{17}}{4}$
$=\frac{7-\sqrt{17}}{4}$ and $\frac{7+\sqrt{17}}{4}$
$x=0.7$ and $x=2.8$

⑥ $a=3$ $b=-6$ $c=2$
$\frac{6\pm\sqrt{36-4(6)(2)}}{2\times3}$
$=\frac{6\pm\sqrt{12}}{6}$
$=\frac{6-\sqrt{12}}{6}$ and $\frac{6+\sqrt{12}}{6}$
$x=0.4$ and $x=1.6$

⑦ $a=1$ $b=-11$ $c=8$
$\frac{11\pm\sqrt{121-4(8)}}{2\times1}$
$=\frac{11\pm\sqrt{89}}{2}$
$=\frac{11-\sqrt{89}}{2}$ and $\frac{11+\sqrt{89}}{2}$
$x=0.8$ and $x=10.2$

⑧ $a=2$ $b=-9$ $c=3$
$\frac{9\pm\sqrt{81-4(6)}}{2\times2}$
$=\frac{9\pm\sqrt{57}}{4}$
$=\frac{9-\sqrt{57}}{4}$ and $\frac{9+\sqrt{57}}{4}$
$x=0.4$ and $x=4.1$

⑨ $a=1$ $b=-10$ $c=2$
$\frac{10\pm\sqrt{100-4(2)}}{2\times1}$
$=\frac{10\pm\sqrt{92}}{2}$
$=\frac{10-\sqrt{92}}{2}$ and $\frac{10+\sqrt{92}}{2}$
$x=0.2$ and $x=9.8$

⑩ $a=1$ $b=-8$ $c=4$
$\frac{8\pm\sqrt{64-4(4)}}{2\times1}$
$=\frac{8\pm\sqrt{48}}{2}$
$=\frac{8-\sqrt{48}}{2}$ and $\frac{8+\sqrt{48}}{2}$
$x=0.5$ and $x=7.5$

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