Level A

Name: _____

Student: _____

Date: _____

	$x^2 - c^2 = 0$	$(x-c)(x+c) = 0$	$\left[\begin{array}{lcl} x-c & = & 0 \\ x+c & = & 0 \end{array}\right.$ $\begin{array}{lcl} x_1 & = & +c \\ x_2 & = & -c \end{array}$	$x \in \{x_1; x_2\}$
1)	$x^2 - 2^2 = 0$	$(x-2)(x+2) = 0$	$\left[\begin{array}{lcl} x-2 & = & 0 \\ x+2 & = & 0 \end{array}\right.$ $\begin{array}{lcl} x_1 & = & +2 \\ x_2 & = & -2 \end{array}$	$x \in \{-2; 2\}$
2)	$x^2 - 3^2 = 0$	$(x-3)(x+\quad) = 0$	$\left[\begin{array}{lcl} x- & = & 0 \\ x+3 & = & 0 \end{array}\right.$ $\begin{array}{lcl} x_1 & = & 3 \\ x_2 & = & - \end{array}$	$x \in \{-3; 3\}$
3)	$x^2 - 25 = 0$	$(x-\quad)(x+5) = 0$	$\left[\begin{array}{lcl} x-5 & = & 0 \\ x+ & = & 0 \end{array}\right.$ $\begin{array}{lcl} x_1 & = & + \\ x_2 & = & - \end{array}$	$x \in \{\quad ; \quad\}$
4)	$x^2 - 16 = 0$	$(x-4)(x+\quad) = 0$	$\left[\begin{array}{lcl} x- & = & 0 \\ x+4 & = & 0 \end{array}\right.$ $\begin{array}{lcl} x_1 & = & \\ x_2 & = & \end{array}$	$x \in \{\quad ; \quad\}$
5)	$x^2 - 81 = 0$	$(x-\quad)(x+\quad) = 0$	$\left[\begin{array}{lcl} x- & = & 0 \\ x+ & = & 0 \end{array}\right.$ $\begin{array}{lcl} x_1 & = & \\ x_2 & = & \end{array}$	$x \in \{\quad ; \quad\}$
6)	$2x^2 - 18 = 0$ $2(x^2 - 9) = 0$	$(x-3)(x+\quad) = 0$	$\left[\begin{array}{lcl} x- & = & 0 \\ x+ & = & 0 \end{array}\right.$ $\begin{array}{lcl} x_1 & = & \\ x_2 & = & \end{array}$	$x \in$
7)	$2x^2 - 32 = 0$ $2(x^2- \quad) = 0$	$(x-\quad)(x+\quad) = 0$	$\left[\begin{array}{lcl} x- & = & 0 \\ x+ & = & 0 \end{array}\right.$ $\begin{array}{lcl} x_1 & = & \\ x_2 & = & \end{array}$	

	$x^2 + bx = 0$	$x\,(x+b) = 0$	$\left[\begin{array}{lcl} x & = & 0 \\ x+b & = & 0 \end{array}\right.$ $\begin{array}{lcl} x_1 & = & 0 \\ x_2 & = & -b \end{array}$	$x \in \{x_1; x_2\}$
8)	$x^2 + 2x = 0$	$x\,(x+2) = 0$	$\left[\begin{array}{lcl} x & = & 0 \\ x+2 & = & 0 \end{array}\right.$ $\begin{array}{lcl} x_1 & = & 0 \\ x_2 & = & -2 \end{array}$	$x \in \{-2; 0\}$
9)	$x^2 - 4x = 0$	$x(x-\quad) = 0$	$\left[\begin{array}{lcl} x & = & \\ x- & = & 0 \end{array}\right.$ $\begin{array}{lcl} x_1 & = & \\ x_2 & = & +4 \end{array}$	$x \in \{0; 4\}$
10)	$x^2 + 3x = 0$	$x\,(x+\quad) = 0$	$\left[\begin{array}{lcl} x & = & \\ x+ & = & 0 \end{array}\right.$ $\begin{array}{lcl} x_1 & = & 0 \\ x_2 & = & \end{array}$	$x \in \{-3; \quad\}$
11)	$x^2 - \frac{x}{2} = 0$	$x\left(x - \frac{1}{2}\right) = 0$	$\left[\begin{array}{lcl} x & = & \\ x - \frac{1}{-} & = & 0 \end{array}\right.$ $\begin{array}{lcl} x_1 & = & 0 \\ x_2 & = & \end{array}$	$x \in \{\quad ; \quad\}$
12)	$x^2 + \frac{x}{3} = 0$	$x\left(x + \frac{1}{-}\right) = 0$	$\left[\begin{array}{lcl} x & = & \\ x + \frac{1}{-} & = & \end{array}\right.$ $\begin{array}{lcl} x_1 & = & \\ x_2 & = & \end{array}$	$x \in \{\quad ; \quad\}$
13)	$x^2 - 5x = 0$	$x(x-\quad) = 0$	$\left[\begin{array}{lcl} x & = & \\ x & = & \end{array}\right.$ $\begin{array}{lcl} x_1 & = & \\ x_2 & = & \end{array}$	$x \in$
14)	$x^2 - \frac{x}{5} = 0$		$\left[\begin{array}{lcl} x & = & \\ x & = & \end{array}\right.$ $\begin{array}{lcl} x_1 & = & \\ x_2 & = & \end{array}$	$x \in$

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	$ax^2+bx+c=0$	$D=b^2-4ac$	$x_{1,2}=\frac{-b\pm\sqrt{D}}{2a}$	x_1 x_2	$a(x-x_1)(x-x_2)=0$
15)	$1\cdot x^2-3x+2=0$ $a=1;\ b=-3;\ c=2$	$D=9-4\cdot 1\cdot 2=1$ $D=1;\qquad \sqrt{D}=1$	$\frac{3\pm 1}{2\cdot 1}$	$x_1=$ $x_2=$	$1\cdot(x-2)(x-1)=0$
16)	$x^2-x-6=0$ $a=1;\ b=\quad;\ c=-6$	$D=(-1)^2-4\cdot$ $D=\qquad \sqrt{D}=$	$\frac{\pm}{2\cdot 1}$	$x_1=$ $x_2=$	$(x-3)(x+2)=0$
17)	$x^2-4x-5=0$ $a=\quad;\ b=-4;\ c=$	$D=\quad -4\cdot$ $D=\qquad \sqrt{D}=$	$\frac{\pm}{2}$	$x_1=$ $x_2=$	$(x-\quad)(x+\quad)=0$
18)	$x^2+5x+6=0$ $a=\quad;\ b=\quad;\ c=$	$D=\quad -4\cdot$ $D=\qquad \sqrt{D}=$	$\frac{\pm}{2}$	$x_1=$ $x_2=$	$(\quad+\quad)(\quad+\quad)=0$
19)	$x^2+5x+4=0$	$D=$ $D=\qquad \sqrt{D}=$	$\frac{\pm}{\qquad}$	$x_1=$ $x_2=$	
20)	$x^2-3x-10=0$	$D=$ $D=\qquad \sqrt{D}=$	$\frac{\qquad}{\qquad}$	$x_1=$ $x_2=$	
21)	$x^2-2x-15=0$	$D=$ $D=\qquad \sqrt{D}=$		$x_1=$ $x_2=$	
22)	$2x^2+4x-6=0$ $2(x^2+\quad x-\quad)=0$	$D=$ $D=\qquad \sqrt{D}=$	$\frac{\pm}{\qquad}$		$2(\quad-\quad)(\quad-\quad)=0$
23)	$2x^2-2x-4=0$ $(x^2+\quad x-\quad)=0$	$D=$ $D=\qquad \sqrt{D}=$	$\frac{\pm}{\qquad}$		$(\quad-\quad)(\quad-\quad)=0$
24)	$2x^2-4x-16=0$ $(\qquad\qquad)=0$	$D=$ $D=\qquad \sqrt{D}=$	$\frac{\pm}{\qquad}$		
25)	$-x^2+x+6=0$ $a=-1;\ b=\quad;\ c=$	$D=$ $D=\qquad \sqrt{D}=$	$\frac{\pm}{\cdot(-1)}$		$-(\quad-\quad)(\quad-\quad)=0$
26)	$x^2-4x+4=0$	$D=$ $D=\qquad \sqrt{D}=$	$\frac{\pm}{\qquad}$	$x_1=$ $x_2=$	$(\quad-\quad)(\quad-\quad)=0$ $(\quad-\quad)^2=0$
27)	$x^2+6x+9=0$	$D=$ $D=\qquad \sqrt{D}=$	$\frac{\pm}{\qquad}$	$x_1=$ $x_2=$	$(\quad-\quad)^2=0$
28)	$-3x^2-6x-3=0$	$D=$ $D=\qquad \sqrt{D}=$			

Level B

Name: _____

Student Number: _____

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	$x^2 - c = 0$	$(x-\sqrt{c})(x+\sqrt{c}) = 0$	$\left[\begin{array}{lll} x-\sqrt{c} & = & 0 \\ x+\sqrt{c} & = & 0 \end{array}\right.$ $\begin{array}{lll} x_1 & = & +\sqrt{c} \\ x_2 & = & -\sqrt{c} \end{array}$	$x \in \{x_1; x_2\}$
1)	$x^2 - 2 = 0$	$(x-\sqrt{2})(x+\sqrt{2}) = 0$	$\left[\begin{array}{lll} x-\sqrt{2} & = & 0 \\ x+\sqrt{2} & = & 0 \end{array}\right.$ $\begin{array}{lll} x_1 & = & +\sqrt{2} \\ x_2 & = & -\sqrt{2} \end{array}$	$x \in \{-\sqrt{2}; \sqrt{2}\}$
2)	$x^2 - 3 = 0$	$(x-\sqrt{3})(x+\quad) = 0$	$\left[\begin{array}{lll} x- & = & 0 \\ x+\sqrt{3} & = & 0 \end{array}\right.$ $\begin{array}{lll} x_1 & = & \sqrt{3} \\ x_2 & = & - \end{array}$	$x \in \{-\sqrt{3}; \sqrt{3}\}$
3)	$x^2 - 1 = 0$	$(x-\quad)(x+1) = 0$	$\left[\begin{array}{lll} x-1 & = & 0 \\ x+ & = & 0 \end{array}\right.$ $\begin{array}{lll} x_1 & = & + \\ x_2 & = & - \end{array}$	$x \in \{\quad ; \quad\}$
4)	$x^2 - 8 = 0$	$(x-2\sqrt{2})(x+\quad) = 0$	$\left[\begin{array}{lll} x- & = & 0 \\ x+2\sqrt{2} & = & 0 \end{array}\right.$ $\begin{array}{lll} x_1 & = & \\ x_2 & = & \end{array}$	$x \in \{\quad ; \quad\}$
5)	$x^2 - 144 = 0$	$(x-\quad)(x+\quad) = 0$	$\left[\begin{array}{lll} x- & = & 0 \\ x+ & = & 0 \end{array}\right.$ $\begin{array}{lll} x_1 & = & \\ x_2 & = & \end{array}$	$x \in \{\quad ; \quad\}$
6)	$2x^2 - 6 = 0$ $2(x^2 - 3) = 0$	$2(x-\sqrt{3})(x+\quad) = 0$	$\left[\begin{array}{lll} x- & = & 0 \\ x+ & = & 0 \end{array}\right.$ $\begin{array}{lll} x_1 & = & \\ x_2 & = & \end{array}$	$x \in$
7)	$-x^2 + 12 = 0$ $-(x^2- \quad) = 0$	$-(x-2\sqrt{3})(x+\quad) = 0$	$\left[\begin{array}{lll} x- & = & 0 \\ x+ & = & 0 \end{array}\right.$ $\begin{array}{lll} x_1 & = & \\ x_2 & = & \end{array}$	

	$ax^2 + bx = 0$	$ax\left(x+\frac{b}{a}\right) = 0$	$\left[\begin{array}{lll} x & = & 0 \\ x+\frac{b}{a} & = & 0 \end{array}\right.$ $\begin{array}{lll} x_1 & = & 0 \\ x_2 & = & -\frac{b}{a} \end{array}$	$x \in \{x_1; x_2\}$
8)	$2x^2 + 4x = 0$	$2x\,(x+2) = 0$	$\left[\begin{array}{lll} x & = & 0 \\ x+2 & = & 0 \end{array}\right.$ $\begin{array}{lll} x_1 & = & 0 \\ x_2 & = & -2 \end{array}$	$x \in \{-2; 0\}$
9)	$3x^2 - 12x = 0$	$3x(x- \quad) = 0$	$\left[\begin{array}{lll} x & = & \\ x- & = & 0 \end{array}\right.$ $\begin{array}{lll} x_1 & = & \\ x_2 & = & +4 \end{array}$	$x \in \{0; 4\}$
10)	$-x^2 - 3x = 0$	$-x\,(x+\quad) = 0$	$\left[\begin{array}{lll} x & = & \\ x+ & = & 0 \end{array}\right.$ $\begin{array}{lll} x_1 & = & 0 \\ x_2 & = & \end{array}$	$x \in \{\quad ; \quad\}$
11)	$2x^2 - x = 0$	$2x\left(x-\frac{1}{2}\right) = 0$	$\left[\begin{array}{lll} x & = & \\ x-\frac{1}{} & = & 0 \end{array}\right.$ $\begin{array}{lll} x_1 & = & 0 \\ x_2 & = & \end{array}$	$x \in \{\quad ; \quad\}$
12)	$3x^2 + x = 0$	$x\left(x+\frac{1}{}\right) = 0$	$\left[\begin{array}{lll} x & = & \\ x+\frac{1}{} & = & \end{array}\right.$ $\begin{array}{lll} x_1 & = & \\ x_2 & = & \end{array}$	$x \in \{\quad ; \quad\}$
13)	$x^2 - bx = 0$	$x(x- \quad) = 0$	$\left[\begin{array}{lll} x & = & \\ x & = & \end{array}\right.$ $\begin{array}{lll} x_1 & = & \\ x_2 & = & \end{array}$	$x \in$
14)	$2x^2 - \frac{x}{5} = 0$		$\left[\begin{array}{lll} x & = & \\ x & = & \end{array}\right.$ $\begin{array}{lll} x_1 & = & \\ x_2 & = & \end{array}$	$x \in$

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	$ax^2+bx+c=0$ $a(x-x_1)(x-x_2)=0$	a b c	$D=b^2-4ac$ $x_{1,2}=\frac{-b\pm\sqrt{D}}{2a}$	x_1 x_2	$\begin{cases} x_1\cdot x_2 = c/a \\ x_1+x_2 = -b/a \end{cases}$
15)	$1\cdot x^2-5x+6=0$ $1\cdot(x-2)(x-3)=0$	$a=1$ $b=-5$ $c=6$	$D=25-4\cdot 1=1$ $x_{1,2}=\frac{5\pm 1}{2}$	$x_1=2$ $x_2=3$	$\begin{cases} 2\cdot 3 = 6/1 \\ 2+3 = 5/1 \end{cases}$
16)	$1\cdot x^2+x-2=0$ $(x-\quad)(x+\quad)=0$	$a=1$ $b=1$ $c=-2$	$D=1+4\cdot 2=$ $x_{1,2}=\frac{-1\pm 3}{2}$	$x_1=1$ $x_2=-2$	$\begin{cases} 1\cdot(-2) = \\ 1+(-\quad) = -1 \end{cases}$
17)	$x^2-4x-5=0$ $(x-\quad)(x+1)=0$	$a=1$ $b=-4$ $c=-5$	$D=16+4\cdot\quad=$ $x_{1,2}=\frac{\pm 6}{2}$	$x_1=5$ $x_2=$	$\begin{cases} 5\cdot(-\quad) = -5 \\ +(-\quad) = \end{cases}$
18)	$x^2+5x+4=0$ $(x+\quad)(x+1)=0$	$a=1$ $b=5$ $c=4$	$D=\quad-4\cdot\quad=$ $x_{1,2}=\frac{\pm 3}{2}$	$x_1=-1$ $x_2=$	$\begin{cases} (-\quad)\cdot(-\quad) = 4 \\ (-\quad)+(-\quad) = \end{cases}$
19)	$2x^2-4x-6=0$ $2(x-\quad)(x+1)=0$	$a=2$ $b=-4$ $c=-6$	$D=\quad-4\cdot\quad=$ $x_{1,2}=\frac{\pm}{2\cdot 2}$	$x_1=$ $x_2=-1$	$\begin{cases} \cdot(-\quad) = -6/2 \\ +(-\quad) = 4/2 \end{cases}$
20)	$2x^2-2x-4=0$ $2(x^2-x-2)=0$ $2(x-\quad)(x+\quad)=0$	$a=1$ $b=-1$ $c=-2$	$D=1+4\cdot 2=$ $x_{1,2}=\frac{1\pm}{2}$	$x_1=2$ $x_2=-$	$\begin{cases} \cdot(-\quad) = -2 \\ - = 1 \end{cases}$

	$x^2+bx+c=0$ $(x-x_1)(x-x_2)=0$	$a=1$ b c	$\begin{cases} x_1\cdot x_2 = c \\ x_1+x_2 = -b \end{cases}$	$\begin{array}{c} x_1 \\ \end{array}\begin{array}{l} \cdot x_2 = c \\ + x_2 = -b \end{array}$	x_1 x_2
21)	$1\cdot x^2-3x+2=0$ $(x-1)(x-2)=0$	$a=1$ $b=-3$ $c=2$	$\begin{cases} 2\cdot 1 = 2 \\ 2+1 = 3 \end{cases}$	$\begin{array}{c} 2 \\ \end{array}\begin{array}{l} \cdot 1 = 2 \\ + 1 = 3 \end{array}$	$x_1=2$ $x_2=3$
22)	$x^2-4x+3=0$ $(x-\quad)(x-\quad)=0$	$a=1$ $b=-4$ $c=3$	$\begin{cases} \cdot = 3 \\ + = 4 \end{cases}$	$\begin{array}{c} 3 \\ \end{array}\begin{array}{l} \cdot 1 = 3 \\ + 1 = 4 \end{array}$	$x_1=3$ $x_2=1$
23)	$x^2-5x+6=0$ $(x-\quad)(x-\quad)=0$	$a=1$ $b=-5$ $c=6$	$\begin{cases} \cdot = 6 \\ + = 5 \end{cases}$	$\begin{array}{c} 3 \\ \end{array}\begin{array}{l} \cdot = 6 \\ + = 5 \end{array}$	$x_1=3$ $x_2=$
24)	$x^2-3x-4=0$ $(x+\quad)(x-\quad)=0$	$a=1$ $b=-3$ $c=-4$	$\begin{cases} \cdot = \\ + = 3 \end{cases}$	$\begin{array}{c} 4 \\ \end{array}\begin{array}{l} \cdot(-\quad) = \\ +(-\quad) = 3 \end{array}$	$x_1=$ $x_2=$
25)	$x^2-3x-10=0$ $(x+\quad)(x-\quad)=0$	$a=1$ $b=-3$ $c=-10$	$\begin{cases} \cdot = \\ + = \end{cases}$	$\begin{array}{l} \cdot(-\quad) = \\ +(-\quad) = 3 \end{array}$	$x_1=$ $x_2=$
26)	$x^2-8x+15=0$ $(x-\quad)(x-\quad)=0$	$a=1$ $b=$ $c=$	$\begin{cases} \cdot = \\ + = \end{cases}$		$x_1=$ $x_2=$