

1. Factor.

$$15 + 5x$$

$$\frac{5}{\text{GCF}} (\underline{3} + \underline{x})$$

HW 5.1a

2. Factor $13w^2 + 12w$.

$$\frac{w}{\text{GCF}} (\underline{13w} + \underline{12})$$

3. Factor.

$$x^2 - 8x + 12$$

$$\begin{array}{c} 12 \\ -6 \quad -2 \\ -8 \end{array} (x-6)(x-2)$$

4. Factor completely.

$$4x^2 + 12x - 16$$

$$\frac{4}{\text{GCF}} (\underline{x^2} + \underline{3x} - \underline{4})$$

$$\begin{array}{c} -4 \\ 4 \quad -1 \\ 3 \end{array} \boxed{4(x+4)(x-1)}$$

1. Factor.

$$5z^2 + 12z + 7$$

AC method diagram for $5z^2 + 12z + 7$. The numbers 7 and 5 are crossed out with a red X, and 12 is written below them. Red arrows indicate the multiplication of 5 and 7 to get 35. Blue arrows indicate the addition of 7 and 5 to get 12.

$$5z^2 + 7z + 5z + 7$$

$$\underbrace{z(5z+7)}_{\text{GCF}} + \underbrace{1(5z+7)}_{\text{GCF}}$$

$$(5z+7)(z+1)$$

HW 5.1b

2. Factor.

$$2z^2 - 13z + 18$$

AC method diagram for $2z^2 - 13z + 18$. The numbers -9 and -4 are crossed out with a blue X, and -13 is written below them. Blue arrows indicate the multiplication of 2 and 18 to get 36. Red arrows indicate the addition of -9 and -4 to get -13.

$$2z^2 - 9z - 4z + 18$$

$$\underbrace{z(2z-9)}_{\text{GCF}} - \underbrace{2(2z-9)}_{\text{GCF}}$$

$$(2z-9)(z-2)$$

3. Factor completely.

$$-2y^2 - 24y - 40$$

$$\underbrace{-2}_{\text{GCF}}(y^2 + 12y + 20)$$

$$-2(y+10)(y+2)$$

AC method diagram for $y^2 + 12y + 20$. The numbers 20 and 2 are crossed out with a green X, and 12 is written below them.

1. Factor.

$$u^2 - 8u + 16$$

$$(u)^2 \quad (4)^2$$

$$(u \cdot 4)(2) = 8u \text{ yes the shortcut works!}$$

$$(u-4)(u-4) = (u-4)^2$$

HWS.1c

2. Factor.

$$25y^2 - 20y + 4$$

$$(5y)^2 \quad (2)^2$$

$$(5y \cdot 2)(2) = 20y \text{ yes the shortcut works!}$$

$$(5y-2)(5y-2) = (5y-2)^2$$

3. Factor.

$$16 - x^2$$

$$(4)^2 - (x)^2$$

$$(4-x)(4+x)$$

Difference of Squares

or

$$\frac{-1}{\text{GCF}}(-16+x^2) = -1(x^2-16)$$

$(x)^2 \quad (4)^2$

$$-1(x+4)(x-4)$$