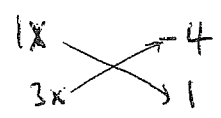
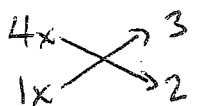
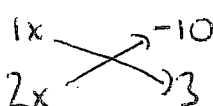


Assessment Quiz: Factoring and Applications
Lessons 1 – 4 (v15)

1. Factor. (2 points each)

<p>a. $x^2 - 4x - 21$</p> $= (x - 7)(x + 3)$	<p>b. $x^2 - 9x + 18$</p> $= (x - 6)(x - 3)$
<p>c. $1.21x^2 - 0.01$</p> $= (1.1x - 0.1)(1.1x + 0.1)$	<p>d. $x^6 - 15x^3 - 16$</p> $= (x^3 - 16)(x^3 + 1)$
<p>e. $x^2 - 100y^2$</p> $= (x - 10y)(x + 10y)$	<p>f. $a^2x^2 - d^2y^2$</p> $= (ax - dy)(ax + dy)$
<p>g. $64x^4 - 25y^4$</p> $= (8x^2 - 5y^2)(8x^2 + 5y^2)$	<p>h. $3x^2 - 11x - 4$</p>  $= (x - 4)(3x + 1)$
<p>i. $4x^2 + 11x + 6$</p>  $= (4x + 3)(x + 2)$	<p>j. $2x^2 - 17x - 30$</p>  $= (x - 10)(2x + 3)$

k. $12x^2 - xy - 6y^2$

$$\begin{array}{l} 3x \rightarrow 2 \\ 4x \rightarrow -3 \end{array}$$

$$= (3x + 2y)(4x - 3y)$$

l. $2\cos^2 x - 9\cos x + 4$

$$\begin{array}{l} 1x \rightarrow -4 \\ 2x \rightarrow -1 \end{array}$$

$$= (\cos x - 4)(2\cos x - 1)$$

2. Fill in the blanks and factor the following perfect square trinomials. (2 points each)

a. $9x^2 + \underline{12}x + 4$

$$= (3x + 2)^2$$

b. $36x^2 + \underline{108}x + 81$

$$= (6x + 9)^2$$

c. $\frac{1}{16}x^2 - 4x + \underline{64}$

$$= \left(\frac{1}{4}x - 8\right)^2$$

d. $\frac{1}{9}x^2 + \underline{\frac{5}{3}}x + \frac{25}{4}$

$$= \left(\frac{1}{3}x + \frac{5}{2}\right)^2$$

3. Factor. (3 points each)

a. $8x^2 - 18y^2$

$$= 2(4x^2 - 9y^2)$$

$$= \boxed{2(2x - 3y)(2x + 3y)}$$

b. $5x^2 - 5x - 30$

$$= 5(x^2 - x - 6)$$

$$= \boxed{5(x - 3)(x + 2)}$$

c. $3x^3 - 27x$

$$= 3x(x^2 - 9)$$

$$= \boxed{3x(x - 3)(x + 3)}$$

d. $fa^2b^2 - f^3g^2$

$$= f(a^2b^2 - f^2g^2)$$

$$= \boxed{f(ab - fg)(ab + fg)}$$

e. $8xy - 98x^3y^3$

$$= 2xy(4 - 49x^2y^2)$$

$$= \boxed{2xy(2 - 7xy)(2 + 7xy)}$$

f. $x^4 - 4x^2 - 45$

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

$$= \boxed{(x - 3)(x + 3)(x^2 + 5)}$$

