

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Math 8Honours: HW 3.11 Factoring and Solving Trinomials**

1. Given each pair of binomials, expand and simplify:

a.  $(x - 3)(x + 4)$

b.  $(x + 11)(x - 9)$

c.  $(2x + 3)(3x - 1)$

e.  $(7x - 3)(4x + 2)$

f.  $(10x - 3)(4x - 2)$

g.  $(8x - 3)(3x - 8)$

2. Given each pair of binomials, solve for "x":

a.  $(x + 9)(x + 21) = 0$

b.  $4(x - 3)(x + 3) = 0$

c.  $(x + 81)(x - 29) = 0$

e.  $(2x - 5)\left(x - \frac{1}{2}\right) = 0$

f.  $x(3x + 1) = 0$

g.  $2(5 - 2x)\left(\frac{1}{3} - x\right) = 0$

3. Given each expression, find the missing value in the box:

a.  $x^2 - 11x - 12 = (x - \boxed{?})(x + 1)$

b.  $x^2 - 29x + 120 = (x - \boxed{?})(x - 5)$

c.  $5x^2 + 6x + 1 = (5x + \boxed{?})(x + 1)$

d.  $2x^2 - 23x + 11 = (2x - \boxed{?})(x - 11)$

4. Factor each of the following expressions. Show all your steps and work:

a.  $x^2 + 7x + 6$

b.  $x^2 + 25x + 24$

c.  $x^2 + 10x + 21$

d.  $x^2 - 10x + 24$

e.  $x^2 + 3x - 40$

f.  $4x^2 + 9x + 2$

g.  $2x^2 + 5x + 2$

h.  $2x^2 - 11x + 15$

i)  $21x^2 + 17x - 30$

j)  $2x^2 - 7x + 5$

k)  $5x^2 - 13x - 6$

l)  $7x^2 + 9x - 10$

m)  $21 + 26x - 15x^2$

n)  $2x^2 - 9xy - 45y^2$

o)  $5x^4 - 9x^2 - 2$

p)  $6 - 7x^2 + 2x^4$

5. Factor each of the following expressions and solve for "x". Show all your steps and work:

a.  $x^2 + 8x + 12 = 0$

b.  $x^2 + 17x + 72 = 0$

c.  $x^2 + 2x - 15 = 0$

d.  $x^2 - 7x - 170 = 0$

e.  $x^2 - 64 = 0$

f.  $100 - x^2 = 0$

g.  $(2x - 1)^2 - 16 = 0$

h.  $2x^2 - 11x + 15 = 0$

i)  $13x^2 + 8x - 5 = 0$

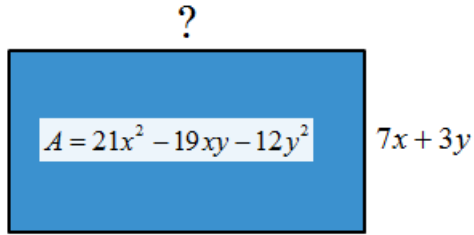
j)  $2x^2 - 25x - 13 = 0$

k)  $2x^2 - 7x + 6 = 0$

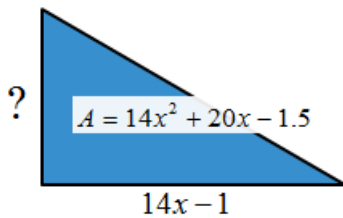
l)  $10x^2 + 49x + 49 = 0$

m) $(x + 2)^2 + 8(x + 2) - 20 = 0$	n) $(x - 3)^2 + 10(x - 3) + 9 = 0$	o) $2(x + 1)^2 - (x + 1) - 6 = 0$
p) $4(x + 2)^2 = 6 - 5(x + 2)$	o) $x^4 - 256 = 0$	q) $x^4 = 10 - 9x^2$
r) $r^4 - 17r^2 + 16 = 0$	s) $x^4 - 29x^2 + 100 = 0$	t) $4(x^2 - 6x + 9)^2 - 12(x^2 - 6x + 9) = -9$

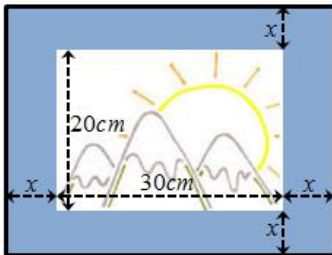
6. The area of a rectangle is given by the expression:  $21x^2 - 19xy - 12y^2$  and the width is  $7x + 3y$ . Find the length of the rectangle:



7. The area of a triangle is given by the expression:  $14x^2 + 20x - 1.5$  and the width is  $14x - 1$ . Find the length of the rectangle:



8. A photograph that is 20cm by 30cm is framed with a uniform mat board as shown below. If the area of the photo with the mat is  $999\text{cm}^2$ , then what is the width of the mat?



9. Find the length of the base for the following triangle:

