

Name: _____

Date: _____

M8H HW CH2 Lesson 7 Factoring GCF and Trinomials

1. Find the GCF and then factor out the GCF

a) $8x^2y - 26xy^2$	b) $25x^3y^2 + 55xy^2 + 10xy$
c) $10xyz^2 + 15x^3z^5 - 35x^2yz^2$	d) $24bc^3 - 72a^3bc^2 + 88a^2b^3c$
e) $x^2(2x-1) + 5x(1-2x)$	f) $8x^2(6x-10) + 12x^3(3x-5)$
g) $27x^3y^2 + 18x^2y^3 - 45xy^4$	h) $18xy^2(2-3x) - 12xy(15-10x) + 9x^2y(6-4x)$

2. 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. $x^2 - 13x + 12 = (x + \boxed{?})(x + \boxed{?})$

d. $x^2 - \boxed{?}x + 44 = (x - \boxed{?})(x - 11)$

e. $x^2 - 2x - 15 = (x + \boxed{?})(x + \boxed{?})$

f. $x^2 - 12x + \boxed{?} = (x - \boxed{?})(x - 7)$

g. $x^2 - 15x - \boxed{?} = (x + 5)(x + \boxed{?})$

h. $3x^2 - 3x - 36 = (3x + \boxed{?})(x + \boxed{?})$

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

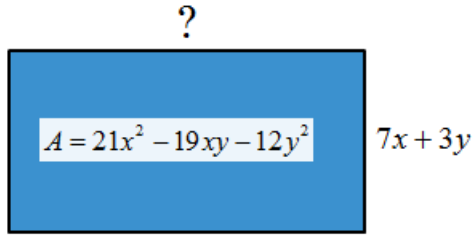
a. $x^2 + 7x + 6$	b. $x^2 + 25x + 24$
c. $x^2 + 10x + 21$	d. $x^2 - 10x + 24$
e. $x^2 + 3x - 40$	f) $3x^2 - 15x - 42$
g) $4x^2 - 36x + 72$	h) $x^3 + 8x^2 - 20x$
i) $2x^2y + 28xy + 42y$	j) $3x^3y - 81x^2y + 150xy$
k) $5x^2 + 20xy - 105y^2$	l) $x^4 - 8x^2 + 12$
m) $-x^4 - 10x^2 - 21$	n) $-x^4 - 4x^2y + 45y^2$

o) $-2x^4 + 8x^2y^2 - 154y^4$	p) $3x^4 - 3x^2y^2 - 216y^4$
q) $2x^2(3 - 2x) + 24x(2x - 3) + 54(3 - 2x)$	r) $2x^2(x - y) - 14xy(x - y) + 88y^2(y - x)$

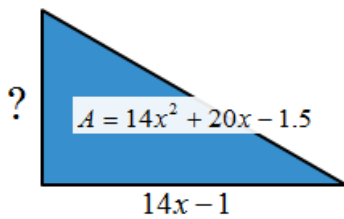
4. Evaluate the following by factoring and without using a calculator

a) $\frac{17^2 - 17 + 6}{17 + 2}$	b) $(15)^2 + 17(15) + 60$
c) $\frac{17^2 - 9(17) + 20}{(17) + 5}$	d) $\frac{17^3 + 2(17)^2 + 34(17)}{17^2}$
e) $\frac{(13)^2 - 4(13)(11) - 12(11)}{(13) - 2(11)}$	f) $\frac{(7)^2 + 3(7)(9) - 10(9)^2}{(7) + 5(9)}$
g) $\frac{\left(\frac{2}{7}\right)^2 - 4\left(\frac{2}{7}\right)\left(\frac{3}{7}\right) - 5\left(\frac{3}{7}\right)^2}{\left(\frac{2}{7}\right) - 5\left(\frac{3}{7}\right)}$	h) $\frac{\left(\frac{3}{4}\right)^2 + 3\left(\frac{3}{4}\right)\left(\frac{1}{4}\right) + 2\left(\frac{1}{4}\right)^2}{\left(\frac{3}{4}\right) + 2\left(\frac{1}{4}\right)}$

5. 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:



6. 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:



7. Suppose the equation $x^2 + kx + 24 = (x - a)(x - b)$, where “a” and “b” are integers. What are all the possible values of “k”?

8. Find the area of the shape in terms of “x”

