

Module 1.3 Multiply Binomials

Directions: Multiply and simplify the following:

- Recall $a(b+c) = ab + ac$
- $(w+4)(w-1)$
 $= (w+4)w + (w+4)(-1) = w^2 + 4w + -w + -4 = w^2 + 3w - 4$
 - $(y-6)(y+2)$
 - $(3y-5)(4y-7)$
 - $(-3b-8)(-2b-3)$
 - $(c-4)(c+4)$
 - $(3+2x)(3-2x)$
 - $(x+6)^2 = (x+6)(x+6)$
 - $(2-7x)^2$
- Handwritten notes for problem 1:*
 each pair you can multiply w/ one thing from {w, 4} and the other from {w, -1} added all together

Module 1.3: Factoring

Factor the following

- $9y+27$ - dist prop both ways
- $14-7x$

Note $(x+a)(x+b)$
 $= x^2 + (a+b)x + ab$
 ie, need find a, b s.t.

$$a+b=9 \text{ and } a-b=20$$

$$\begin{array}{r}
 20 \\
 1 \quad 20 \rightarrow 21 \\
 2 \quad 10 \rightarrow 12 \\
 4 \quad 5 \rightarrow 9 \quad \checkmark \\
 (x+4)(x+5)
 \end{array}$$

4. $y^2 - 10y + 16$

7. $x^2 + 18x + 81$

5. $z^2 - z - 20$

8. $v^2 - 64$

6. $z^2 - 9z + 14$

9. $v^2 - 16$

Solving equations by factoring: *Adding w/this is called an*
Zero-Product Property: *integral domain.*
 If $a * b = 0$ then $a = 0$, $b = 0$, or both $a = 0$ and $b = 0$.

Solve for the given variable.

1. $(w + 7)(w - 5) = 0$

4. $x^2 + 8x + 15 = 0$

2. $(y - 2)(y - 8) = 0$

5. $y^2 - 5y - 14 = 0$

3. $y^2 + 6y + 5 = 0$

6. $x^2 + 10x + 25 = 0$