Find product ① $(4y)(3y+8)$ $12y^2+32y+24$ ② $(5m+6)(5m-6)$ $25m^2-36$ ③ $(4q-5)^2$ $16q^2-40q+25$

4.4 Solve $ax^2+bx+c=0$ by Factoring

In Warmup, look at 1st & last terms...

4 9 16 25 36 49 64 81 100

$12y^2$ came from $4y \cdot 3y$ $25m^2$ from $5m \cdot 5m$ $16q^2$ From $4q \cdot 4q$

** were the 1st in binomials **

-24 from -3 & 8 -36 from 6 & -6 25 from -5 & -5

** were last in binomials **

Factoring ax^2+bx+c

$5x^2-17x+6$

$1x \cdot 5x$

$1 \cdot 6$
$2 \cdot 3$
$-1 \cdot -6$
$-2 \cdot -3$

1st - Factor both 1st & last terms

Comes from $5x^2$

$(\bigcirc x \_\_)(\bigcirc x \_\_)$

Comes from $+6$

2nd - Use trial & error, and intuition/FOIL

$(5x-2)(1x-3)$

*need to get -17, so think of negative #'s

-1 & -6 or -2 & -3

Hey... $5 \cdot -3 = -15$, which is close to -17, so try it

$(5x-2)(1x-3)$ - check O & I

$5x \cdot -3 + -2 \cdot 1x$

$-15x + -2x = -17x$ — Yes! NOT!!

p263: 3-21 odd

Factor

1) $3x^2+20x-7$ 2) $4x^2-81$ 3) $9y^2+12y+4$ 4) $4r^2-28r+49$

$(3x-1)(x+7)$ $(2x-9)(2x+9)$ $(3y+2)(3y+2)$ $(3y+2)^2$ $2r-7(2r-7)$ $(2r-7)^2$