3.2b Factoring Expressions

Factoring expressions - writing an expression as a product of factors

$6 = 2 \times 3$

product (multiple) — factors

$3(x+8)$

$3 \cdot x + 3 \cdot 8$

$3x + 24$

$3(x+8)$

Ex. 1 $24x \div 6 \quad 18 \div 6$

1 2 3 4 6 8 12 24 — 1 2 3 6 9 18

GCF: 6 — $4x$ — 3

Ex. 2 $12x + 3$

$12x \div 3 \quad 3 \div 3$

$3(4x+1)$

$3(4x+1)$

$3 \cdot 4x + 3 \cdot 1$

$12x + 3$

*to check answer, distribute

Ex. 3 $21x^2 + 7x$

$3 \cdot 7 \cdot x \cdot x + 1 \cdot 7 \cdot x$

$7x(3x+1)$

$21x^2 + 7x$

Ex. 4 $\frac{1}{2}x + \frac{3}{2}$

$\frac{1}{2} \cdot x + \frac{1}{2} \cdot 3$

$\frac{1}{2}(x+3)$

$\frac{3}{2} \div \frac{1}{2}$

$\frac{3}{1} \cdot \frac{2}{1}$

3

$\frac{1}{2}(x+3)$

$\frac{1}{2} \cdot x + \frac{1}{2} \cdot \frac{3}{1}$

$\frac{1}{2}x + \frac{3}{2}$

Ex. 5 $-4p - 10$

$-2 \cdot 2 \cdot p + -5 \cdot 2$

$2(-2p-5)$

or

$-2(2p+5)$

HW: p. 93 #1-15 odd