## Lesson 9: Working with Signed Numbers

* Let’s work with signed numbers.

### 9.1: Sorting Expressions

Sort these into two groups, so that the expressions in each group all equal each other.

* $3−5$
* $5+3$
* $4⋅2$
* $-\frac{1}{3}⋅6$
* $5−-3$
* $-4⋅-2$
* $3+-5$
* $\frac{1}{3}⋅-6$

### 9.2: Expanded Form

For each expression given in factored form, write two equivalent expressions in expanded form. If you get stuck, draw a diagram to represent the product. Some blank diagrams are provided—draw additional diagrams as needed.

1. $(30+3)(30−2)$
2. $(20−1)(20−1)$
3. $(100+5)(100−m)$
4. $(40−a)(40+b)$
5. $y(11−y)$
6. $-7(3a−1)$
7. $\frac{1}{4}(-8a+12a)$
8. $-x(3x−5)$

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### 9.3: Factoring and Expanding

In each row, write the equivalent expression. If you get stuck, use a diagram to organize your work. The first row is provided as an example. Diagrams are provided for the first three rows.



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| --- | --- |
| factored | expanded |
| $-3(5−2y)$ | $-15+6y$ |
| $c(c−5)$ |   |
|   | $8a−4b$ |
| $-3(2w−7z)$ |   |
| $-(3y−2x)$ |   |
|   | $12x−14x^{2}$ |
| $n(3−10)$ |   |
|   | $5y−7y$ |
| $-5x(y−2z)$ |   |
|   | $wt−tv−5tz$ |
| $-a(2b−4c+a)$ |   |



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