

4.3 Subtracting Integers

MATHPOWER™ Seven, pp. 120-121

To subtract an integer, add its opposite.

First, rewrite each subtraction sentence as an addition sentence.

| | | | |
|-----------------|-----------------|-----------------|-----------------|
| $(+4) - (+6)$ | $(-3) - (-5)$ | $(+6) - (-2)$ | $(-4) - (+5)$ |
| $= (+4) + (-6)$ | $= (-3) + (+5)$ | $= (+6) + (+2)$ | $= (-4) + (-5)$ |
| $= -2$ | $= +2$ | $= +8$ | $= -9$ |

Write the opposite of each integer.

- | | |
|----------------|----------------|
| 1. $+6$ _____ | 2. -2 _____ |
| 3. $+10$ _____ | 4. -1 _____ |
| 5. $+32$ _____ | 6. -21 _____ |

Calculate.

| | Addition | Subtraction |
|-----|-----------------|-----------------|
| 7. | $(+8) + (+2) =$ | $(+8) - (-2) =$ |
| 8. | $(-3) + (-4) =$ | $(-3) - (+4) =$ |
| 9. | $(-2) + (-7) =$ | $(-2) - (+7) =$ |
| 10. | $(+4) + (-6) =$ | $(+4) - (+6) =$ |
| 11. | $(-5) + (+9) =$ | $(-5) - (-9) =$ |
| 12. | $(+8) + (-3) =$ | $(+8) - (+3) =$ |

Complete each addition sentence and simplify.

13. $(+3) - (-2) = (+3) +$ _____ $=$ _____
14. $(-2) - (-7) = (-2) +$ _____ $=$ _____
15. $(+9) - (+11) = (+9) +$ _____ $=$ _____
16. $(-1) - (-4) = (-1) +$ _____ $=$ _____
17. $(-5) - (+3) = (-5) +$ _____ $=$ _____
18. $(+8) - (+2) = (+8) +$ _____ $=$ _____

Write the addition sentence and simplify.

19. $(+3) - (+3) =$ _____ $=$ _____
20. $(-6) - (-1) =$ _____ $=$ _____
21. $(+7) - (+2) =$ _____ $=$ _____
22. $(-4) - (+4) =$ _____ $=$ _____
23. $(+2) - (+4) =$ _____ $=$ _____
24. $(-1) - (-7) =$ _____ $=$ _____

Subtract.

25. $(+10) - (-6)$ _____ 26. $(-14) - (+7)$ _____
27. $(-3) - (-9)$ _____ 28. $0 - (-9)$ _____
29. $(-3) - (+6)$ _____ 30. $(+8) - (-9)$ _____
31. $(+13) - (+7)$ _____ 32. $(-6) - (-12)$ _____

Find the missing integer.

33. $\square - (-2) = -6$ 34. $(+6) - \square = +4$
35. $(+9) - \square = -1$ 36. $\square - (+2) = -7$
37. $(-8) - \square = -5$ 38. $\square - (-3) = +5$

The table shows the average early morning and mid-afternoon temperatures in April for six Canadian communities. Complete the table by finding the temperature increase from early morning to mid-afternoon for each community.

| | Community | Average Temperature (°C) | | Temperature Increase |
|-----|---------------|--------------------------|---------------|----------------------|
| | | Early Morning | Mid-afternoon | |
| 39. | Calgary | -3 | +9 | |
| 40. | Charlottetown | -2 | +6 | |
| 41. | Dawson | -9 | +5 | |
| 42. | Halifax | -1 | +8 | |
| 43. | Iqaluit | -19 | -9 | |
| 44. | Vancouver | 5 | +13 | |

45. Mercury boils at $+357^{\circ}\text{C}$ and freezes at -39°C . What is the difference between the boiling point and the freezing point of mercury?
- _____