NAME

Module 1 Getting Ready for Algebra
Lesson 2 Simplifying Expressions with Integers

Simplify each expression.

1. 5 + (–2)
3

2. 1 + (–12)
–11

3. (–8) + (–4)
–12

4. (–6) + (–4)
–10

5. –3 + 17
14

6. –9 + 13
4

7. 54 + 36
90

8. 72 + 78
150

9. 8 – 3
5

10. 6 – 15
–9

11. –8 – 8
–16

12. –37 – 22
–59

13. –11 – (–11)
0

14. –19 – (–26)
7

15. 21 – (–21)
42

16. 39 – 39
0

17. –3 + (–1) + (–7)
–11

18. –7 + 8 + (–10)
–9

19. (–5) + (–22) + (–7)
–34

20. 3 + (–18) + 48
33

21. 9 – (–3) + 6
18

22. –1 – (–5) + 32
36

23. 0 – (–17) + 39
56

24. 13 – (–13) + 45
71

25. (–7)(6)
–42

26. (13)(–4)
–52

27. (2)(–7)(8)
–112

28. (–64)(0)(–19)
0

29. (–4)(6)(–5)
120

30. (–3)(–9)
27

31. (8)(–7)(–1)
56

32. (–75)(0)(–25)
0

33. 49 ÷ (–7)
–7

34. (–54) ÷ 9
–6

35. $\frac{-75}{-25}$
3

36. $\frac{-98}{7}$
–14

37. 0 ÷ (–16)
0

38. 810 ÷ (–9)
–90

39. $\frac{1}{0}$
undefined

40. $\frac{-215}{215}$
–1

Journal

1. What is different about multiplying and dividing integers and what is similar?
2. How can you define subtraction using addition?
3. What happens when you add opposites, subtract opposites, multiply opposites, and divide opposites?
4. What is the easiest way to decide if the product of several factors is positive or negative?
5. Write the rule for adding integers in your own words.

Cumulative Review

Are the following numbers rational or irrational?

1. 7.236	**2.** 23.6666...	**3.** π	**4.** $\sqrt{33}$	**5.** –438
rational	rational	irrational	irrational	rational
6. $-7\frac{4}{9}$	**7.** $\sqrt{49}$	**8.** $\sqrt{17}$	**9.** $\sqrt{0}$	**10.** $\sqrt{\frac{4}{9}}$
rational	rational	irrational	rational	rational

Possible Journal Responses

1. **Multiplying integers and dividing integers are different because they are different operations. They are similar in that the rules for determining the sign of the product for multiplication are the same as the rules for determining the sign of the quotient for division.**
2. **To subtract a number, add its opposite.**
3. **Adding opposites always results in zero. (e.g. 8 + (–8) = (–8) + 8 = 0) Subtracting opposites doubles the first number. (e.g. 8 – (–8) = 16 and –8 – (+8) = –16) Multiplying opposites results in the opposite of the square of either number. (e.g. (–8)(8) = (8)(–8) = –64) Dividing opposites always results in negative one. (e.g. 8 ÷ (–8) = (–8) ÷ (8) = –1)**
4. **The easiest way to decide on the sign of a product with several factors is to count the number of *negative* factors. If there is an even number of negative factors, the product is positive. If there is an odd number of negative factors, the product is negative.**
5. **If the numbers have the same sign, add the absolute value of the numbers and keep the same sign. If the numbers have different signs, subtract the absolute value of the numbers and take the sign of the number with the greater absolute value.**

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Simplify each expression.

1. 7 + (–3)
4

2. 11 + (–2)
9

3. (–6) + (–5)
–11

4. (–7) + (–8)
–15

5. –13 + 7
–6

6. –19 + 23
4

7. 45 + 31
76

8. 21 + 32
53

9. 9 – 7
2

10. 5 – 12
–7

11. –5 – 5
–10

12. –25 – 15
–40

13. –17 – (–11)
–6

14. –10 – (–46)
36

15. 11 – (–11)
22

16. 26 – 26
0

17. –8 + (–2) + (–4)
–14

18. –4 + 9 + (–8)
–3

19. (–2) + (–14) + (–1)
–17

20. 7 + (–8) + 6
5

21. 8 – (–5) + 4
17

22. –3 – (–6) + 11
14

23. 0 – (–33) + 56
89

24. 7 – (–7) + 15
29

25. (–9)(8)
–72

26. (11)(–3)
–33

27. (3)(–2)(5)
–30

28. (7)(0)(–27)
0

29. (–5)(6)(–7)
210

30. (–7)(–4)
28

31. (9)(–8)(–1)
72

32. (25)(0)(–3)
0

33. 36 ÷ (–6)
–6

34. (–35) ÷ 7
–5

35. $\frac{-55}{-5}$
11

36. $\frac{-81}{9}$
–9

37. 0 ÷ (–6)
0

38. 18 ÷ (–2)
–9

39. $\frac{15}{0}$
undefined

40. $\frac{-12}{12}$
–1