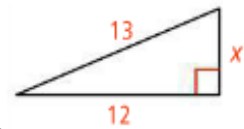Find each missing side length.

1.

15   36

x

2.

y   25

24
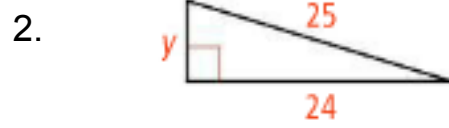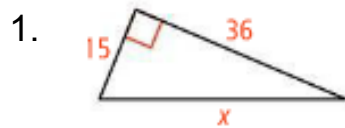
3. Could the lengths 12 cm, 35 cm, and 37 cm be the sides of a right triangle? Explain.

4. A student found the length x in the triangle below by solving the equation $12^2 + 13^2 = x^2$. Describe and correct the error.

13   x

12

5. A jogger goes half a mile north and then turns west. If the jogger finishes 1.3 mi from the starting point, how far west did they go?

6. A construction worker is cutting along the diagonal of a rectangular board 15 ft long and 8 ft wide. What will be the length of the cut?

Hot and Cold Cubes

In this activity, you will practice adding and subtracting signed integers. To help with this, try thinking of positive numbers as "hot" cubes and cold numbers as "cold" cubes.

Adding and Subtracting Signed Integers

Let <u>positive</u> numbers represent <u>hot</u> cubes. Let <u>negative</u> numbers represent <u>cold</u> cubes.
Let <u>addition</u> indicate <u>putting cubes in</u>. Let <u>subtraction</u> indicate <u>taking cubes out</u>.
Putting in hot cubes will increase the temperature; putting in cold cubes will decrease it.
Taking out hot cubes will decrease the temperature; taking out cold cubes will increase it.

Example 1: $9 + (-2) = ?$
This question shows 9 hot cubes with two cold cubes being added to them. The two cold cubes will cancel out the effect of two hot cubes, leaving 7 hot cubes.
$9 + -2 = +7$

Example 2: $-5 - (-3) = ?$
This question shows 5 cold cubes with three cold cubes being taken from them. When three cold cubes are taken away, 2 cold cubes will be left.
$-5 - (-3) = -2$

---

1. $-5 + (-11) =$

2. $-14 + 13 =$

3. $-9 + 15 =$

4. $-5 + (-4) =$

5. $-5 + (-13) =$

6. $-18 + (-3) =$

7. $-2 + (+17) =$

8. $15 + (-9) =$

9. $-10 + 3 =$

10. $-11 + (-18) =$

11. $8 + (-15) + 13 =$

12. $-11 + 10 + (-7) + 9 =$

Scrambled answers for #1-12: -29, -21, -18, -16. –9, -7, -1, 1, 6, 6, 6, 15
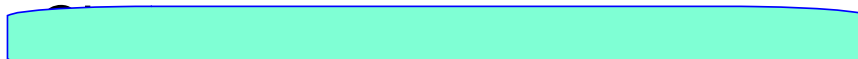
What are the "rules" for adding integers?

1-5 Subtracting integers: When you subtract two integers, you are really adding the opposite number. OMG...what does that mean?
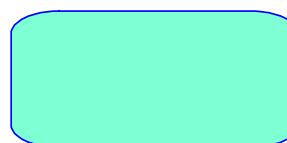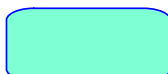
$3 - 5$ is the same as

$3 + (-5)$

So, how do you get the problem that way? Well....how about ....

Keep, switch, change

Let's try one

13. $-14 + (-15) + 26 + 7 =$ 14. $-35 + 15 + 25 + (-10) =$ 15. $98 + (-102) + 102 + (-98) =$

Let's try a few:

16. $7 - 13 =$ 17. $-8 - 5 =$ 18. $-17 - 9 =$

19. $9 - (-2) =$ 20. $-18 - (-16) =$ 21. $-24 - (-23) =$

22. $-5 - 3 =$ 23. $-6 - (-8) =$ 24. $7 - 13 =$

25. $-11 - 9 =$ 26. $-13 - (-18) =$ 27. $-17 - (-2) =$

28. $-34 - (-19) =$ 29. $-42 - 38 =$ 30. $-18 - (-18) =$

Scrambled answers for #13-30: -80, -26, -20, -15, -15, -13, -8, -6, -6, -5, -2, -1, 0, 0, 2, 4, 5, 11

pg 34: # 11-29 odd and #31-47 odd, 50,53,54,58-60

Use a number line to find each sum. ◆ **See Problem 1.**

11. $-3 + 8$ **13.** $1 + (-6)$

15. $-4 + 7$ **17.** $-9 + (-3)$

Find each sum. ◆ **See Problem 2.**

19. $17 + (-28)$ **21.** $-2 + 7$

23. $-9 + (-2)$ **25.** $5.1 + (-0.7)$

27. $\frac{1}{2} + \left(-\frac{7}{2}\right)$ **29.** $\frac{7}{9} + \left(-\frac{5}{12}\right)$

Find each difference. ◆ **See Problem 3.**

31. $-13 - 7$ **33.** $36 - (-12)$

35. $-7 - (-5)$ **37.** $-2.5 - 17.8$

39. $3.5 - 1.9$ **41.** $\frac{7}{16} - \left(-\frac{1}{2}\right)$

43. Stock Market A stock's starting price per share is $51.47 at the beginning of the week. During the week, the price changes by gaining $1.22, then losing $3.47, then losing $2.11, then losing $.98, and finally gaining $2.41. What is the ending stock price?

Evaluate each expression for $a = -2$, $b = -4.1$, and $c = 5$.

45. $-c + b - a$

@ **47. Error Analysis** Describe and correct the error in finding the difference shown at the right.

$-4 - (-5) = -4 + (-(-5))$
$= -4 + 5$
$= -1$

Simplify each expression.

50. $7 + (2^2 - 3^2)$

@ **Reasoning** Use reasoning to determine whether the value of each expression is *positive* or *negative*. Do not calculate the exact answers.

53. $-225 + 318$ **54.** $-\frac{7}{8} + \frac{1}{3}$

Decide whether each statement is true or false. Explain your reasoning.

58. The sum of a positive number and a negative number is always negative.

59. The difference of two numbers is always less than the sum of those two numbers.

60. A number minus its opposite is twice the number.