

7.EE.4 — Equations & Inequalities in the Real World

Mixed Operations • Grade 7 • CCSS 7.EE.4

Name: _____

Date: _____

Read each word problem carefully, write the equation, and solve for the unknown variable.

1. Maya is saving money to buy a book that costs \$12.75. She already has \$4.50 saved. She writes the equation $x + 4.50 = 12.75$, where x is the amount she still needs to save. How much more money does Maya need?

2. A bag of apples weighs 3.6 pounds. After eating some apples, the bag weighs 1.9 pounds. Using the equation $x + 1.9 = 3.6$, where x is the weight eaten, how many pounds of apples were eaten?

3. Carlos earns \$8.50 per hour at his part-time job. He wants to find out how many hours he must work to earn \$59.50. He sets up $8.5h = 59.50$. How many hours must Carlos work?

4. A recipe calls for $\frac{2}{3}$ cup of sugar. Leah has already measured $\frac{1}{4}$ cup. She writes $x + \frac{1}{4} = \frac{2}{3}$ to find how much more sugar she needs. How much more sugar does Leah need?

5. A plumber charges a flat fee of \$35 plus \$25 per hour. The total bill was \$110. The equation $25h + 35 = 110$ represents this situation, where h is the number of hours worked. How many hours did the plumber work?

6. Jordan bought several notebooks at \$1.75 each and spent a total of \$10.50. Using the equation $1.75n = 10.50$, where n is the number of notebooks, how many notebooks did Jordan buy?

7. A temperature drops by 4.5 degrees and reaches -2.3°F . The equation $t - 4.5 = -2.3$ models this situation, where t is the starting temperature. What was the starting temperature?

8. Three friends split a restaurant bill equally, and each person paid \$14.60. Using the equation $3x = 43.80$ to find the total bill, what was the total restaurant bill?

9. A school fundraiser raised a total of \$276. Each student collected the same amount, and 12 students participated. Using $12x = 276$, where x is the amount each student raised, how much did each student raise?

10. A rectangular garden has a length that is 5.2 meters more than its width. The length is 9.8 meters. Using the equation $w + 5.2 = 9.8$, where w is the width, find the width of the garden.

11. Sophia ran $\frac{1}{2}$ mile in the morning and some more miles in the afternoon. She ran $2\frac{3}{4}$ miles total. The equation $\frac{1}{2} + x = 2\frac{3}{4}$ represents this. How far did Sophia run in the afternoon?

12. A store is selling packs of trading cards for \$3.25 each. Damon spent \$19.50 on trading cards. Using $3.25p = 19.50$, where p is the number of packs, how many packs did Damon buy?

13. Mia is thinking of a number. When she multiplies it by 6 and adds 4, she gets 34. The equation $6x + 4 = 34$ represents this. What is the number Mia is thinking of?

14. A group of students each donated \$2.50 to a charity jar. The jar now contains \$17.50. Using $2.50s = 17.50$, where s is the number of students, how many students donated?

15. A picture frame has a perimeter of 54 inches. The width is 11 inches. Using the equation $2(l + 11) = 54$, where l is the length, find the length of the frame.
16. Tyler has some money. After spending \$6.75 on lunch and \$3.50 on a snack, he has \$5.25 left. The equation $x - 6.75 - 3.50 = 5.25$ models this. How much money did Tyler start with?
17. A worker packs $\frac{1}{3}$ of a crate of oranges per hour. After several hours, she has packed 4 crates. Using $(\frac{1}{3})h = 4$, where h is the number of hours, how many hours did she work?
18. Four times a number, decreased by 7, equals 13. The equation $4n - 7 = 13$ models this situation. What is the number?
19. A school bus can carry 48 passengers. After some students get off at the first stop, 31 students remain. Using the equation $48 - x = 31$, where x is the number of students who got off, how many students got off at the first stop?
20. Elena buys 5 equally priced notebooks and a pen that costs \$1.20. She pays \$8.70 in total. Using the equation $5n + 1.20 = 8.70$, where n is the cost of one notebook, find the cost of each notebook.
21. A swimming pool holds 12,000 gallons of water. It is being drained at a rate of 450 gallons per hour. Using $12000 - 450t = 7500$, where t is time in hours, find after how many hours the pool will have 7,500 gallons remaining.
22. A cell phone plan charges a flat monthly fee of \$15 plus \$0.10 per text message. Last month's bill was \$23.40. Using $0.10m + 15 = 23.40$, where m is the number of texts sent, how many text messages were sent?

Answer Key

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1. $x = \$8.25$

2. $x = 1.7$ pounds

3. $h = 7$ hours

4. $x = 5/12$ cup

5. $h = 3$ hours

6. $n = 6$ notebooks

7. $t = 2.2^{\circ}\text{F}$

8. $x = \$43.80$

9. $x = \$23$

10. $w = 4.6$ meters

11. $x = 2 \frac{1}{4}$ miles

12. $p = 6$ packs

13. $x = 5$

14. $s = 7$ students

15. $l = 16$ inches

16. $x = \$15.50$

17. $h = 12$ hours

18. $n = 5$

19. $x = 17$ students

20. $n = \$1.50$

21. $t = 10$ hours

22. $m = 84$ text messages