5 How to • • • • • • • • • Recognize Extra Information in Word Problems

Facts to Know

Sometimes a problem has extra information that you do not need to solve the problem. But before you start these problems, keep in mind that you need to ask yourself these four important questions:

- What does the problem ask you to find?
- What information is needed to solve the problem?
- How can you show the problem with numbers?
- What is your answer?

Sample A

At the art fair, Libby bought a mug of root beer for $1, a veggie burger for $2, a hot fudge sundae for $2, and a piece of pottery for $5. How much did Libby spend on food?

First, focus on the information you need to answer the question being asked. Then identify the extra information that is not necessary for answering the question because it has no effect on the answer.

In the problem above, the question is about money spent on food. So the extra information is that Libby bought a piece of pottery for $5.

Now, you can solve the problem using only the information that's necessary.

$1 + $2 + $2 = $5

Libby spent $5 on food.

Sample B

Erica and her friends had a pizza party. They ordered 8 pizzas. $\frac{1}{2}$ of the pizzas were large combo pizzas, $\frac{1}{4}$ of the pizzas were medium specialty pizzas, and $\frac{1}{4}$ were medium pepperoni pizzas. They also ordered five 2-liter sodas for $1.50 each. How many medium pepperoni pizzas did Erica and her friends order?

First, focus on the information you need to answer the question being asked. Then identify the extra information that is not necessary for answering the question because it has no effect on the answer.

In the problem above, the question is about how many medium pepperoni pizzas were ordered. So the extra information is how many sodas and large combo pizzas, were ordered by Erica and her friends.

Now you can solve the problem using only the information that's necessary.

$\frac{1}{2}$ of 8 pizzas is 4 pizzas

Erica and her friends ordered 2 medium pepperoni pizzas.

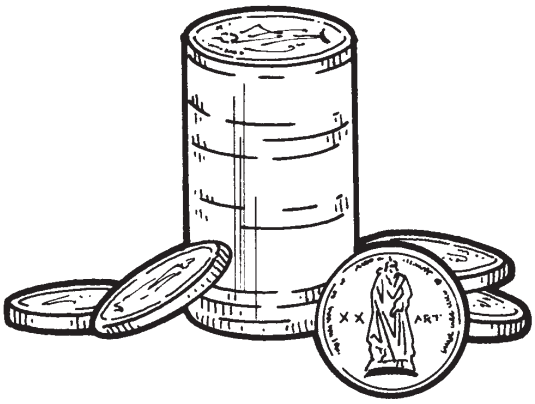
$\frac{1}{4}$ of 8 pizzas is 2 pizzas

5 Practice • • • • • • • • • Identifying Extra Information in Word Problems

Directions: Using the information on page 21, solve the problems below and on pages 23 and 24.

Russian rubles are interesting coins. They are sometimes smaller than ours. How many Russian rubles can you buy with $300.00 if 20 rubles are worth a dollar?

1. What does the problem ask you to find?
- a. how many rubles is $300
- b. how many dollars are 20 rubles
- c. how much less are rubles worth than dollars
- d. how many rubles can you buy with $300



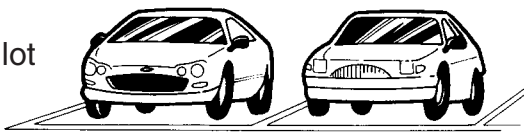
2. What is the extra information in the problem?
- e. Russian rubles are interesting coins
- f. 20 rubles are worth a dollar
- g. rubles are sometimes smaller than our coins
- h. e and g

3. How can you show the problem with numbers?
- i. $300 x 20 rubles/$1 =
- j. $300 x $1 x 20 rubles =
- k. $300 x $\frac{20}{100}$ =
- l. $\frac{20}{300}$ x $1.00 =

4. What is your answer?
- m. 6,000 rubles
- n. 600 rubles
- o. 3,000 rubles
- p. 60,000 rubles

The train-station parking lot has space for 1,000 cars. $\frac{2}{5}$ of the spaces are for standardized cars. Many commuters arrived late for the train. On Tuesday, there were 200 standardized cars and some standard-size cars in the parking lot. The parking lot was $\frac{3}{4}$ full. How many standard-size cars were in the parking lot?

5. What does the problem ask you to find?
- a. how many spaces are for standard-size cars
- b. how many spaces were empty
- c. how many standard-size cars were in the parking lot
- d. how many compact cars could still squeeze in



6. What is the extra information in the problem?
- e. the train station parking lot has space for 1,000 cars
- f. $\frac{2}{5}$ of the spaces are for standardized cars
- g. many commuters arrived late for the train
- h. the parking lot was $\frac{3}{4}$ full

5 Practice • • • • • • • • • Identifying Extra Information in Word Problems

7. How can you show the problem with numbers?_____

Hint: *Keep in mind that the lot holds 1,000 cars, and it was* $\frac{3}{4}$ *full. How many total cars were there?*

8. What is your answer?

i. 750 cars
j. 550 standard-size cars
k. 600 standard-size cars
l. 1,750 cars

Julio runs $\frac{3}{10}$ mile in $1\frac{1}{2}$ minutes. If he keeps running at that rate on a day when the wind is blowing against him, how long will it take him to run one mile?

9. What does the problem ask you to find?

a. how much will the wind slow him down
b. how far does he have to run
c. how fast can he run
d. how long will it take him to run one mile

10. What is the extra information in the problem?

e. he runs $\frac{3}{10}$ mile in $1\frac{1}{2}$ minutes
f. the wind is blowing against him
g. he will keep running at that rate
h. he is going to run one mile

11. How can you show the problem with numbers? _____

Hint: *There is a formula for figuring out problems like this one. First, figure out Julio's rate per* $1\frac{1}{2}$ *minutes:* $(\frac{3}{10}$ *mile)* $\div$ $(1\frac{1}{2}$ *minutes) = rate per* $1\frac{1}{2}$ *minutes. (Remember to use the reciprocal for the second fraction and multiply). Once you get his rate, use this formula:*

t (time) = d (distance) ÷ r (rate)

12. What is your answer?

i. 10 minutes
j. 5 minutes
k. .05 minutes
l. 1 minute

A computer disk holds 720k of memory. The disks come 10 in a pack for $3.95. If three programs are on a disk and they use 27k, 34k, and 52k of memory, how much memory is left on the disk?

13. What does the problem ask you to find?

a. how much does each disk cost
b. how much memory is left on the disk
c. what is the total space being used on the disk
d. how much space is available on a disk

14. What is the extra information in the problem?

e. A computer disk can hold 720k of information.
f. Three programs are on a disk.
g. The three programs use 27k, 34k, and 52k of memory.
h. The disks come 10 in a pack for $3.95.

Answer Key

Pages 7 and 8

1. Step #1: c
   Step #2: f
   Step #3: i
   Step #4: m
2. Step #1: a
   Step #2: e
   Step #3: j
   Step #4: o
3. Step #1: c
   Step #2: g
   Step #3: j
   Step #4: n

Pages 10–12

1. c
2. (given)
3. h
4. j

   1,753 (2nd year)
   − 152 (less 3rd year)
   1,601 (3rd year total)

   1,572
   1,753
   + 1,601
   4,926

5. d
6. g
7. 110–95
   130–95
   116–95
8. j
   110 – 95 = 15 cookies leftover
   130 – 95 = 35 fudge leftover
   116 – 95 = 21 peanut butter squares left over
9. d
10. g
11. (given)
12. j
    Each day the grasshopper goes 1/8 m until the day when the grasshopper is at 1.75 m in the morning. He gets out of the hole that day. 1.75/(1/8) = 14 and 14 + 1 more day = 15 days.
13. b
14. (given)
15. h
16. i
    7 (days) x $191,781 (per day) = $1,342,467
17. 24,000 kilometers/32 kilometers per gallon = 750 gallons in 1 year
    750 gallons x .05 = 37.5 gallons
    You could save 37.5 gallons in 1 year.
18. Convert the 5 pounds into ounces by multiplying 5 pounds by 16 ounces (1 pound). Five pounds is 80 ounces. There are 8 families. 80/8 is 10. Each family gets 10 ounces of cheese.
19. 1 billion seconds x 1 min/60 sec = 16,666,667 minutes
    16,666,667 minutes x 1 hour/60 min = 277,778 hours
    277,778 hours x 1 day/24 hours = 11,574 days
    11,574 days x 1 year/365 days = 32 years.
    A billion seconds is 32 years old.
20. 1 hour 10 minutes is 70 minutes.
    28 seedlings ÷ 40 min = .7 of a seedling per minute
    .7 of a seedling x 70 minutes = 49 seedlings

Pages 14–16

1. d
2. g
3. (given)
4. l
   9:00 A.M. – (15 minutes + 20 minutes + 35 minutes)
   9:00 A.M. – 70 minutes, or 1 hour 10 minutes = 7:50 A.M.
5. c
6. h
7. (given)
8. l
   85 ÷ 2 = 42.5, but page numbers go in order; pages 42 and 43
9. d
10. h
11. k
12. n
13. b
14. (given)
15. h
16. k
    1 + 3 + 5 + 7 + 9 + 11 + 13 + 15 = 64 strawberries
    64 + 8 (taken out earlier) = 72 strawberries at the start
17. d
18. e
19. i
20. o
    3 trips with 10 cars + 2 trips with 6 trucks
    30 cars + 12 trucks = 42 vehicles

Pages 19 and 20

1. 540 minutes
2. 1,000 – 1,200 people
3. front-end estimation
4. compatible numbers
5. $9,000 – $11,000
6. a. greater
   b. Henry 240; April 210; Felicia 260
   c. April and Felicia
   d. 115 and 120
7. 730
8. $1,000 – $1,200
9. front-end estimation
10. 700 (by rounding down)
11. 412 + 629 ~ 1000
    325 + 685 ~ 1000
    879 ~ 900
    estimate: 2,900
12. 1,400 – 1,600
13. Colleen 8, Andrea 5
14. 13 paved, 8 unpaved

Pages 22–24

1. d
2. h
3. i
4. m
5. c
6. g
7. (1,000 x 3/4) – 200 = 550
8. j
   3/4 of 1000 is 750 cars in on Tuesday. 750 cars – 200 compact cars = 550 standard-size cars
9. d
10. f
11. (given)
12. j
    t (time) = 1.0 miles (distance) ÷ 1/5 mile per min (rate) = 5 min
13. b
14. h
15. i
16. m
17. b
18. e
19. i
20. o
    If it costs 77 cents to produce 35 cars, then each car costs: 77/35 = 2.2 cents. It costs 2.2 cents to make each car. So 385 cars x 2.2 cents for each car = 847 cents, or $8.47 to produce 385 cars.

Page 28

1. 2 1/2 cookies each
2. $55.75
3. $14,756.75
4. $148.00
5. 16
6. 50, 100
7. 68
8. 225
9. $50
10. $32.50

Pages 30–32

1. First column 4 = 2 + 2
   2 x 2 = 4
   Second column 5 = 2 + 3
   2 x 3 = 6

4	5	9	**13**	**10**	**15**	16	**3**	7
2	2	4	**7**	5	7	**7**	1	**3**
2	3	5	6	**5**	8	**9**	2	4
4	6	20	42	25	**56**	63	2	12

2. 1,2 2,3 3,4 4,5 5,6 6,7 7,8 8,9
   1,3 2,4 3,5 4,6 5,7 6,8 7,9
   1,4 2,5 3,6 4,7 5,8 6,9
   1,5 2,6 3,7 4,8 5,9
   1,6 2,7 3,8 4,9
   1,7 2,8 3,9
   1,8 2,9
   1,9
   36 = 8 + 7 + 6 + 5 + 4 + 3 + 2 + 1

   There are 36 children.

3. a. 2 + 4 + 6 + 8 + 10 + 12 + 14 + 16 + 18 + 20 + 22 + 24 = $156.00

   b. $8190.00

4. .01 +.02 +.04 +.08 +.16 +.32 +.64 = $1.27 > $1.25

   Rob should ask for a daily allowance.

5. Every 7 days it's another Tuesday. So start by dividing 100 by 7 to get 14 with a remainder of 2. So in 100 days, 14 Tuesdays will go by + 2 extra days, making it Thursday.

6.

Renters	Kilowatt Hours
1	2
2	5
3	7
4	10
5	12
6	15
7	17
8	20
9	22
10	25

7. 320
8. 50 minutes
9. August 9th
10. Each member in the series is the sum of the two numbers before it.

    The next numbers are 377, 610, 987

11. East! It always points east at a quarter past.
12.

15	1	2	12
4	10	9	7
8	6	5	11
3	13	14	0