

EXTRA PRACTICE — Exercises

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Unit II – First Degree Relations with One Placeholder Part E – Problem Solving Using One Placeholder Lesson 1 – General Strategy and Set Up

For each of the following story problems, answer the five analysis questions to find the open sentence needed to solve. Do not solve.

1. One number is one half of another. Their sum is six less than forty-eight. What are the numbers?
2. Helen is thirty-seven years older than Faye. Five years ago, the sum of their ages was eighty-five. What are their ages now?
3. A video company increased its production of video games by six thousand units per year during its second year of operation. If the company turned out twenty-four thousand units during their second year, how many did it produce the first year?
4. A field one hundred seventeen yards long is one yard longer than twice its width. What is the width of the field?
5. June is one year more than three times as old as her brother Jim. If Jim is fifteen years old, how old is June?
6. The sum of two numbers is sixty-five. The greater number is thirty-two more than twice the other number. Find the numbers.
7. A newsboy has twenty-five pennies and twice as many dimes as nickels. Altogether, he has 94 coins. If his pennies, nickels, and dimes total six dollars, how many of each of these coins does he have?
8. Together, a house and a lot cost one hundred sixty-two thousand dollars. The cost of the house is eight times the cost of the lot. Find the cost of the house and the cost of the lot.
9. The price on a camera is now four-fifths of the price it was two weeks ago. The price today is two-hundred fifty dollars. What was the price two weeks ago?
10. Find a number such that five times that number is twelve less than twice that number.

EXTRA PRACTICE — Answer Key

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Unit II – First Degree Relations with One Placeholder Part E – Problem Solving Using One Placeholder Lesson 1 – General Strategy and Set Up (page 1)

For each of the following story problems, answer the five analysis questions to find the open sentence needed to solve. Do not solve.

- 1) One Number; Other Number
 - 2) One Number is one half of another number.
Their sum is six less than 48.
 - 3) Their sum is six less than 48
 - 4) x → other number
 $\frac{1}{2}x$ → one number
 - 5) $x + \frac{1}{2}x = 48 - 6$
- 1) Helen's Age; Faye's Age
 - 2) Helen is 37 years older than Faye.
Five years ago, the sum of their ages is 85.
 - 3) Five years ago, the sum of their ages is 85.
 - 4) F → Faye's Age
 $F+37$ → Helen's Age
 $F-5$ → Faye's Age 5 years ago
 $F+37-5$ → Helen's Age 5 years ago
 - 5) $(F-5)+(F+37-5)=85$
- 1) Video games produced first year
Video games produced second year
 - 2) Video games produced second year is 6,000 more than the number of video games produced the first year.
Video games produced second year is 24,000.
 - 3) Video games produced second year is 24,000.
 - 4) v → Video games produced first year
 $v+6,000$ → Video games produced second year
 - 5) $v+6,000=24,000$
- 1) Length of field; Width of field
 - 2) Length of a field is 117 yards.
Length of a field is 1 yard longer than twice its width.
 - 3) Length of a field is 1 yard longer than twice its width.
 - 4) w → width of field
 $2w+1$ → length of field
 - 5) $2w+1=117$
- 1) June's Age; Jim's Age
 - 2) June is 1 year more than 3 times as old as Jim.
Jim is 15 years old.
 - 3) June is 1 year more than 3 times as old as Jim
 - 4) J → June's Age
 15 → Jim's Age
 - 5) $J=3(15)+1$
- 1) Greater Number; other number
 - 2) The sum of two numbers is 65.
The greater number is 32 more than twice the other number.
 - 3) The greater number is 32 more than twice the other number.
 - 4) x → greater number
 $65-x$ → other number
 - 5) $x=2(65-x)+32$

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Unit II – First Degree Relations with One Placeholder Part E – Problem Solving Using One Placeholder Lesson 1 – General Strategy and Set Up (page 2)

For each of the following story problems, answer the five analysis questions to find the open sentence needed to solve. Do not solve.

7. 1) Number of Pennies; Number of Nickels;
Number of Dimes
2) Number of Pennies is 25.
Number of Dimes is twice the number of nickels.
The total number of coins is 94
3) The total number of coins is 94
4) 25 → number of pennies
 N → number of nickels
 $2N$ → number of dimes
5) $25 + N + 2N = 94$
8. 1) Cost of house; Cost of lot
2) Cost of lot plus cost of house is \$162,000.
Cost of house is 8 times cost of lot.
3) Cost of lot plus cost of house is \$162,000.
4) L → cost of lot
 $8L$ → cost of house
5) $L + 8L = 162,000$
9. 1) Present price for camera;
Price of camera two weeks ago
2) The present price for camera is \$250.00.
The present price for the camera is four-fifths
the price of the camera two weeks ago.
3) The present price for the camera is four-fifths
the price of the camera two weeks ago.
4) 250 → present price of camera
 T → price of camera two weeks ago
5) $\$250 = \frac{4}{5}P$
10. 1) A number
2) Five times the number is twelve less than
twice the number.
3) Five times the number is twelve less than
twice the number.
4) N → the number
5) $5N = 2N - 12$