

***LHF STUDY GUIDE* PASS THE HiSET® MATH TEST!**

WORD PROBLEMS

Lesson 2 Mixed Word Problems Set B

This set includes a variety of word problems. Read through the six examples and then do the Practice Questions.

Example 1

Last month Sammy stocked up on soup when it was on sale. If each can of soup cost 75 cents, and he spent a total of \$24, how many cans did he buy?

- A. 18 B. 22 C. 28 D. 32 E. 38

There are several ways to solve this problem.

Method 1 Divide total cost by cost per can to get number of cans. $\$24 \div \$0.75 = 32$
Answer: D. 32

Method 2 Set up a proportion. $\frac{\# \text{ of Cans}}{\text{Cost}} = \frac{1}{\$0.75} = \frac{?}{\$24}$

To solve a proportion, multiply the diagonals and divide by the remaining number. $\$24 \times 1 \div \$0.75 = 32$

Method 3 If you're not sure what to do, use trial and error with the five multiple choice answers that are provided. Test each answer to see if that number of cans x \$0.75 per can will total to \$24.

- | | | |
|-----------|---------------------------------------|---|
| Try A. 18 | Does 18 cans x \$0.75 per can = \$24? | No, it is \$13.50, so 18 cans is not the right answer. |
| Try B. 22 | Does 22 cans x \$0.75 per can = \$24? | No, it is \$16.50, so 22 cans is not the right answer. |
| Try C. 28 | Does 28 cans x \$0.75 per can = \$24? | No, it is \$21.00, so 28 cans is not the right answer. |
| Try D. 32 | Does 32 cans x \$0.75 per can = \$24? | Yes, it does equal \$24, so 32 cans is the right answer. |

Example 2

Jasmine's bank balance was \$3,450.75 on Monday morning. During the week she wrote a rent check for \$600 and a check for her car payment of \$275. She also deposited her paycheck of \$1,246.67, and used the ATM to get \$60 in cash. What is her bank balance at the end of the week after all these transactions?

- A. \$1,269.08 B. \$4,962.43 C. \$3,762.42 D. \$3,822.42 E. \$3,487.42

Start with the opening balance, subtract any money that came out of the bank account, and add any money that went into the bank account.

Be careful to determine which numbers are added and which are subtracted.

$$\$3,450.75 - \$600 - \$275 + \$1,246.67 - \$60 = \$3,762.42$$

Answer: C. \$3,762.42

NOTE: Common mistakes with this type of problem are to leave out one of the numbers, or to enter the numbers incorrectly on the calculator.

Example 3

Kendra has rented 8 tables at the Dedham Holiday Bazaar for \$75 per table. She will be selling holiday wreaths for a price of \$30 each. How many of the 200 wreaths she is bringing will Kendra have to sell to pay for her table rental fee?

- A. 83 B. 29 C. 20 D. 315 E. 600

Calculate the total rental fee for the tables, then divide by \$30 to see how many wreaths must be sold to earn that amount.

$$\text{Table rental cost is } 8 \times \$75 = \$600$$

$$\$600 \div \$30 = 20 \text{ wreaths.}$$

Answer: C. 20

Note that the number of wreaths she brings does not affect the calculation.

OR

If you calculate the total rental cost as \$600, and then aren't sure what to do, you can solve by using trial and error with the five multiple choice answers provided.

Try A. 83 Does $83 \text{ wreaths} \times \$30 = \$600$ No, it is \$2,490, so 83 is not the right answer, and is way too high.

Try B. 29 Does $29 \text{ wreaths} \times \$30 = \$600$ No, it is \$870, so 29 is not the right answer, and is a little too high.

Try C. 20 Does $20 \text{ wreaths} \times \$30 = \$600$ Yes, it does equal \$600, so the right answer is 20 wreaths.

If 20 wreaths are sold it will bring in \$600, which is enough to pay the table rental fee.

Example 4

Lester's printer can print 16 pages per minute. How many pages can he print in 10 days if he uses his printer for 2 hours every day?

- A. 320 B. 960 C. 1,920 D. 9,600 E. 19,200

You are given 16 pages per minute.

First calculate how many pages he can print in 1 hour.

16 pages per minute x 60 minutes per hour = 960 pages per hour.

Next calculate how many pages he can print in 1 day.

960 pages per hour x 2 hours per day = 1,920 pages printed in 1 day.

Then multiply by 10 to get pages printed in 10 days.

1,920 pages per day x 10 days = 19,200 pages printed in 10 days.

Answer: E. 19,200

Do this type of problem in steps. Use the time unit you are given to calculate the next largest time unit, and continue calculating the next largest time unit until you get to the time unit asked for in the problem.

In this problem, you are given pages per minute, so first calculate pages per hour, then pages per day, and finally pages in 10 days. Note that each step is to the next largest time unit: per minute, then

per hour, then

per day, and finally

per the 10 days that the problem asks for.

Memorize the following time conversions if you do not already know them:

1 minute = 60 seconds

1 hour = 60 minutes

1 day = 24 hours

1 week = 7 days

1 year = 12 months

Example 5

The Morrison Charity Association gets an average of 74 donations per month. At the same rate, which expression shows how many donations will be received in the next $4\frac{1}{2}$ months?

- A. $74 \div 4\frac{1}{2}$ B. $74 \times 4\frac{1}{2}$ C. $74 + 4\frac{1}{2}$ D. $4\frac{1}{2} \div 74$ E. $74 - 4\frac{1}{2}$

Multiply 74 donations each month times $4\frac{1}{2}$ months.

Answer: B. $74 \times 4\frac{1}{2}$

Example 6

The cost of running the Littleton Festival is \$35,000. Ticket sales will bring in \$22,000 and the city of Littleton will contribute \$5,000. Ads in the Littleton Festival Guide will be sold for \$500 each. Which of the following expressions shows how many ads must be sold to cover the rest of the cost of running the festival?

- A. $\$500 \div (\$35,000 - \$27,000)$ B. $\$35,000 - \$27,000 \div \$500$ C. $\$35,000 \div \500
D. $(\$35,000 - \$27,000) \div \$500$ E. $\$22,000 \div \500

Calculate the total amount of money that still has to be raised, and divide it by \$500 to see how many ads must be sold.

$\$22,000 + \$5,000$ has already been raised, and together this is \$27,000.

\$35,000 is the total needed, so the amount left to be raised is $(\$35,000 - \$27,000)$.

To see how many ads must be sold, divide the amount to be raised by the cost of each ad.

Answer: D. $(\$35,000 - \$27,000) \div \$500$

The correct answer could also have been expressed as: $\frac{\$35,000 - \$27,000}{\$500}$

Think of the fraction bar as a division sign.

NOTE that answer B. $\$35,000 - \$27,000 \div \$500$ is **not** correct.

Order of operations says to do division first, and then subtraction, which will not give the correct answer.

In answer D, order of operations says to do what is inside the parentheses first, and then the division, which will give the correct answer.

Practice – Mixed Word Problems Set B *Answers – p. 7*

1. Falice works at her company's computer help desk, and answers 3 calls per hour. If she works 8 hours per day and 5 days per week, which expression shows how many calls she will answer in 1 week?

- A. $3 \times 8 + 5$ B. $8 \times 5 - 3$ C. $(3 \times 8) \div 5$ D. $3 + 8 \times 5$ E. $3 \times 8 \times 5$

2. SueAnne needs to make a total of 150 wedding favors. She has already made 60 favors, and will make another 15 by the end of the day. If she can make 25 favors per day, which expression shows how many more days after today it will take her to finish making all the favors?

- A. $150 \div 25$ B. $150 - 60$ C. $(150 - 60 - 15) \div 25$
D. $150 - 75$ E. $25 \div (150 - 60 - 15)$

3. Sue has printed 300 copies of her new Guide To Healthy Cooking at a cost of \$1.25 per copy. If she sells them for \$15 each, how many copies does she need to sell to cover the total cost of printing the 300 copies?

- A. 15 B. 20 C. 25 D. 36 E. 35

4. For a charity's fundraising drive, a local business will give \$25 for every donation the charity gets from a first time donor. The charity received 420 total donations, and half of these were from first time donors. How much will the local business give the charity?

- A. \$5,250 B. \$10,500 C. \$5,520 D. \$445 E. \$990

5. For every TV that he sells, Ace Electronics pays Charlie a \$15 commission. If his commission check was \$525, how many TVs did he sell?

- A. 7,875 B. 35 C. 2,625 D. 105 E. 36

6. The power safety system at Dunham Manufacturing Co. runs all the time and is never turned off. It does a power level check 3 times per hour. Which expression shows how many power level checks are made in 1 week?

- A. $3 \times 60 \times 7$ B. 3×7 C. $3 \times 24 \div 7$ D. $60 \div 3 \times 7$ E. $3 \times 24 \times 7$

7. Mary bought a notebook for \$2.29, a package of pens for \$1.99, and a package of pencils for \$1.50. Which expression shows how much change she will receive if she pays with a 20 dollar bill? (Assume there is no sales tax.)

- A. $(\$2.29 + \$1.99 + \$1.50) - \20.00 B. $\$20.00 - \$2.29 + \$1.99 + \1.50
C. $\$20.00 - (\$2.29 + \$1.99 + \$1.50)$ D. $\$20.00 + \$2.29 + \$1.99 + \1.50
E. $\$20.00 - (\$2.29 - \$1.99 - \$1.50)$

8. The Sunshine Café uses an average of 16 cases of coffee each week. How many cases of coffee will they use in the next $7\frac{1}{2}$ weeks at this same rate?

- A. 120 B. 112 C. $23\frac{1}{2}$ D. 102 E. 140

9. Ms. Burns bought Deluxe Game Fun Packs for all of her nieces and nephews. If she bought 15 Deluxe Game Fun Packs and spent a total of \$187.50, which expression shows how much each Deluxe Game Fun Pack cost?

- A. $15 \div \$187.50$ B. $\$187.50 + 15$ C. $\$187.50 - 15$
D. $\$187.50 \times 15$ E. $\$187.50 \div 15$

10. Alonzo spends 4 hours per day entering deposit tickets. If he can enter 16 deposit tickets per minute, how many deposit tickets can he enter in 3 days?

- A. 192 B. 3,840 C. 11,520 D. 11,250 E. 1,280

11. Leo opened a bank account with a deposit of \$750. During the week, he deposited his paycheck of \$1,652.68. He also wrote a check for \$800 for his rent, wrote a check for \$165.97 for his cable bill, and took out \$80 in cash. What is his bank balance at the end of the week?

- A. \$1,365.71 B. \$1,436.71 C. \$2,956.71 D. \$1,516.71 E. \$1,356.71

12. The city of Greenville plans to build a monument in front of town hall. The city has budgeted \$20,000 for the project, and the county will contribute \$8,000 from its city support fund. The rest will be raised by charging admission to the unveiling ceremony for the monument. If the total amount needed for the project is \$32,000 and each admission ticket costs \$20, how many admission tickets must be sold to reach the \$32,000 total?

- A. 1,600 B. 4,200 C. 4,000 D. 200 E. 900

13. On average, Ben and his crew can paint 8 houses per month. About how many houses can they paint over the next $6\frac{1}{2}$ months if they continue at the same rate?

- A. $14\frac{1}{2}$ B. 25 C. $45\frac{1}{2}$ D. 52 E. 48

14. LaShawn's Bookmobile started the week with 3,262 books. On Monday 62 books were checked out and 27 books were returned. On Tuesday 32 books were checked out and 45 books were returned. Which expression shows how many books were in the Bookmobile at the end of the day Tuesday?

- A. $3,262 + 62 - 27 + 32 - 27$ B. $3,262 - 62 + 27 - 32 + 45$
C. $3,622 - 62 + 27 - 32 + 45$ D. $3,262 + (62 - 27) + (45 - 32)$
E. $3,262 - (62 - 27) - (45 - 32)$

15. Jermaine will give 3 sales procedure packets to everyone at the staff meeting. If it costs \$1.25 to print each packet, and 30 people attend the meeting, which expression shows how much it will cost to print all of the packets?

- A. $30 \times 3 \div \$1.25$ B. $30 \times 3 \times \$1.25$ C. $30 \div 3 \times \$1.25$
D. $30 \div 3 \div \$1.25$ E. $30 \times \$1.25$

ANSWER KEY Lesson 2 Mixed Word Problems Set B

1. Falice works at her company's computer help desk, and answers 3 calls per hour. If she works 8 hours per day and 5 days per week, which expression shows how many calls she will answer in 1 week?

- A. $3 \times 8 + 5$ B. $8 \times 5 - 3$ C. $(3 \times 8) \div 5$ D. $3 + 8 \times 5$ E. **$3 \times 8 \times 5$**

You are given 3 calls per hour.

First calculate calls per day. Multiply by 8 hours per day. 3×8

Then calculate calls per week. Multiply by 5 days per week. $3 \times 8 \times 5$

ANSWER: E. $3 \times 8 \times 5$

2. SueAnne needs to make a total of 150 wedding favors. She has already made 60 favors, and will make another 15 by the end of the day. If she can make 25 favors per day, which expression shows how many more days after today it will take her to finish making all the favors?

- A. $150 \div 25$ B. $150 - 60$ C. **$(150 - 60 - 15) \div 25$**
D. $150 - 75$ E. $25 \div (150 - 60 - 15)$

Notice that you need an expression answer, not a numerical answer.

Calculate how many favors she will have left to make at the end of the day, and divide by 25 favors per day to see how many days it will take.

Favors left to make is $(150 - 60 - 15)$. Divide this total by 25.

ANSWER: C. $(150 - 60 - 15) \div 25$

TIP: What if you are able to figure out that the answer to the question is 3 days, but aren't sure which expression is correct? Calculate the value of each multiple choice answer until you find one that equals 3.

- Try A. $150 \div 25 \rightarrow 6$ Does not equal 3, so is not the correct expression.
Try B. $150 - 60 \rightarrow 90$ Does not equal 3, so is not the correct expression.
Try C. $(150 - 60 - 15) \div 25 \rightarrow 3$ Does equal 3, so is the correct expression.

3. Sue has printed 300 copies of her new Guide To Healthy Cooking at a cost of \$1.25 per copy. If she sells them for \$15 each, how many copies does she need to sell to cover the total cost of printing the 300 copies?

- A. 15 B. 20 C. **25** D. 36 E. 35

Calculate the cost of printing 300 copies, and divide by \$15 to see how many books must be sold to cover the cost of the printing.

Cost of printing is $300 \times \$1.25 = \375 .

$\$375 \div \$15 = 25$

ANSWER: C. 25

4. For a charity's fundraising drive, a local business will give \$25 for every donation the charity gets from a first time donor. The charity received 420 total donations, and half of these were from first time donors. How much will the local business give the charity?

- A. \$5,250 B. \$10,500 C. \$5,520 D. \$445 E. \$990

Calculate the number of first time donors, and multiply by \$25 to get the amount the local business will give the charity.

First time donors are half of all the donations, so $420 \times \frac{1}{2} = 210$ first time donors.

$$210 \times \$25 = \$5,250$$

ANSWER: A. \$5,250

5. For every TV that he sells, Ace Electronics pays Charlie a \$15 commission. If his commission check was \$525, how many TVs did he sell?

- A. 7,875 B. 35 C. 2,625 D. 105 E. 36

Divide the total earned by the amount earned per TV to get the number of TVs.

$$\$525 \div \$15 = 35$$

ANSWER: B. 35

OR Set up a proportion.

$$\frac{\text{Commission}}{\# \text{ of TVs}} \quad \frac{\$15}{1} = \frac{\$525}{?} \quad \$525 \times 1 \div \$15 = \mathbf{35}$$

OR Use trial and error with the multiple choice answers provided.

Try A. 7,875 Does $\$15 \times 7,875 \text{ TVs} = \525 ? No, it is \$118,125, which is way too much.

Try B. 35 Does $\$15 \times 35 \text{ TVs} = \525 ? Yes, it does equal \$525, so 35 is The correct number of TVs.

6. The power safety system at Dunham Manufacturing Co. runs all the time and is never turned off. It does a power level check 3 times per hour. Which expression shows how many power level checks are made in 1 week?

- A. $3 \times 60 \times 7$ B. 3×7 C. $3 \times 24 \div 7$ D. $60 \div 3 \times 7$ E. $3 \times 24 \times 7$

You are given 3 checks per hour.

First calculate checks per day. Multiply by 24 hours per day. 3×24

Then calculate checks per week. Multiply by 7 days per week. $3 \times 24 \times 7$

ANSWER: E. $3 \times 24 \times 7$

NOTE: The system is never turned off, so use 24 hours per day and 7 days per week.

7. Mary bought a notebook for \$2.29, a package of pens for \$1.99, and a package of pencils for \$1.50. Which expression shows how much change she will receive if she pays with a 20 dollar bill? (Assume there is no sales tax.)

- A. $(\$2.29 + \$1.99 + \$1.50) - \20.00 B. $\$20.00 - \$2.29 + \$1.99 + \1.50
C. **$\$20.00 - (\$2.29 + \$1.99 + \$1.50)$** D. $\$20.00 + \$2.29 + \$1.99 + \1.50
E. $\$20.00 - (\$2.29 - \$1.99 - \$1.50)$

Subtract all of the expenses from \$20. To do this, add up the expenses, put them in parentheses, and subtract from \$20.

The expenses are $(\$2.29 + \$1.99 + \$1.50)$.

ANSWER: C. $\$20.00 - (\$2.29 + \$1.99 + \$1.50)$

NOTE: The minus sign in front of the parentheses means to subtract everything that is inside the parentheses.

Answer E is not correct, because it says to subtract \$2.29, $-\$1.99$, and $-\$1.50$ instead of subtracting \$2.29, \$1.99, and \$1.50.

If Answer E was written without the parentheses, $\$20.00 - \$2.29 - \$1.99 - \1.50 , it would be correct.

NOTE: answer A is not correct because it subtracts \$20 from the expenses instead of subtracting the expenses from \$20.

8. The Sunshine Café uses an average of 16 cases of coffee each week. How many cases of coffee will they use in the next $7\frac{1}{2}$ weeks at this same rate?

- A. **120** B. 112 C. $23\frac{1}{2}$ D. 102 E. 140

Multiply the number of cases used each week times the number of weeks.

$$16 \times 7\frac{1}{2} = 120$$

ANSWER: A. 120

NOTE: Enter $7\frac{1}{2}$ on the calculator as 7.5 or as 7 abc 1 abc 2.

9. Ms. Burns bought Deluxe Game Fun Packs for all of her nieces and nephews. If she bought 15 Deluxe Game Fun Packs and spent a total of \$187.50, which expression shows how much each Deluxe Game Fun Pack cost?

- A. $15 \div \$187.50$ B. $\$187.50 + 15$ C. $\$187.50 - 15$
D. $\$187.50 \times 15$ E. **$\$187.50 \div 15$**

Divide the total spent by the number of items to get the cost of each item.

ANSWER: E. $\$187.50 \div 15$

10. Alonzo spends 4 hours per day entering deposit tickets. If he can enter 16 deposit tickets per minute, how many deposit tickets can he enter in 3 days?

- A. 192 B. 3,840 C. **11,520** D. 11,250 E. 1,280

You are given 16 tickets entered per minute.

First calculate the number of tickets he can enter in 1 hour.

16 tickets per minute x 60 minutes per hour = 960 tickets in 1 hour.

Next calculate how many tickets he can enter in 1 day.

960 tickets per hour x 4 hours per day = 3,840 tickets in 1 day.

Then calculate how many tickets he can enter in 3 days.

3,840 tickets per day x 3 days = 11,520 tickets in 3 days.

ANSWER: C. 11,520

11. Leo opened a bank account with a deposit of \$750. During the week, he deposited his paycheck of \$1,652.68. He also wrote a check for \$800 for his rent, wrote a check for \$165.97 for his cable bill, and took out \$80 in cash. What is his bank balance at the end of the week?

- A. \$1,365.71 B. \$1,436.71 C. \$2,956.71 D. \$1,516.71 E. **\$1,356.71**

Start with the opening balance, subtract checks and cash taken out, and add checks and cash deposited.

$\$750 + \$1,652.68 - \$800 - \$165.97 - \$80 = \$1,356.71$

ANSWER: E. \$1,356.71

12. The city of Greenville plans to build a monument in front of town hall. The city has budgeted \$20,000 for the project, and the county will contribute \$8,000 from its city support fund. The rest will be raised by charging admission to the unveiling ceremony for the monument. If the total amount needed for the project is \$32,000 and each admission ticket costs \$20, how many admission tickets must be sold to reach the \$32,000 total?

- A. 1,600 B. 4,200 C. 4,000 D. **200** E. 900

First calculate how much money still has to be raised, then divide by \$20 to see how many tickets need to be sold to raise that amount of money.

They need \$32,000 total, and they have \$28,000 so far, so they still need

$\$32,000 - \$28,000 = \$4,000$.

$\$4,000 \div \$20 = 200$

ANSWER: D. 200

13. On average, Ben and his crew can paint 8 houses per month. About how many houses can they paint over the next $6\frac{1}{2}$ months if they continue at the same rate?

- A. $14\frac{1}{2}$ B. 25 C. $45\frac{1}{2}$ **D. 52** E. 48

Multiply 8 houses per month times $6\frac{1}{2}$ months.

$$8 \times 6\frac{1}{2} = 52$$

ANSWER: D. 52

14. LaShawn's Bookmobile started the week with 3,262 books. On Monday 62 books were checked out and 27 books were returned. On Tuesday 32 books were checked out and 45 books were returned. Which expression shows how many books were in the Bookmobile at the end of the day Tuesday?

- A. $3,262 + 62 - 27 + 32 - 27$ **B. $3,262 - 62 + 27 - 32 + 45$**
C. $3,622 - 62 + 27 - 32 + 45$ D. $3,262 + (62 - 27) + (45 - 32)$
E. $3,262 - (62 - 27) - (45 - 32)$

Start with 3,262 books, subtract the books checked out, and add the books returned.

ANSWER: B. $3,262 - 62 + 27 - 32 + 45$

15. Jermaine will give 3 sales procedure packets to everyone at the staff meeting. If it costs \$1.25 to print each packet, and 30 people attend the meeting, which expression shows how much it will cost to print all of the packets?

- A. $30 \times 3 \div \$1.25$ **B. $30 \times 3 \times \$1.25$** C. $30 \div 3 \times \$1.25$
D. $30 \div 3 \div \$1.25$ E. $30 \times \$1.25$

Calculate the total number of packets needed, then multiply by the cost to print each packet.

There are 30 people, and each person gets 3 packets, so 30×3 packets are needed. Then multiply by the \$1.25 cost of each packet.

ANSWER: B. $30 \times 3 \times \$1.25$