

Word Problem Practice

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12. Joel currently has a balance of \$212.35 in his bank account. He must maintain a minimum balance of \$750 in the account to avoid paying a monthly fee. How much money can Joel deposit into his account to avoid paying this fee?

- Choose a variable, then write an inequality that can be used to solve this problem.
- Solve the problem.
- Graph the solution.

13. Teagan is saving money to buy a snowmobile helmet. One weekend, she earned \$20 to add to her savings, but she still did not have the \$135.99 she needed for the helmet.

- Choose a variable, then write an inequality to represent this situation.
- Solve the inequality. What does the solution represent?
- Verify the solution and graph it on a number line.

14. **Assessment Focus** Marie has \$4.85. She wants to buy a muffin and a cake at a bake sale. The cake is on sale for \$3.45. How much can Marie spend on a muffin?

- Choose a variable, then write an inequality to solve the problem.
- Use the inequality to solve the problem.
- Graph the solution on a number line.
- A deluxe muffin costs \$1.45.
Can Marie afford to buy this muffin?
Justify your answer.
Show your work.

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8. Write, then solve an inequality to show how many cars you would have to wash at \$5 a car to raise at least \$300.

10. The Student Council decides to raise money by organizing a dance. The cost of hiring the video-DJ is \$1200 and the Student Council is charging \$7.50 per ticket. How many tickets can be sold to make a profit of more than \$1500?

- Choose a variable and write an inequality to solve this problem.
- Use the inequality to solve the problem.
- Verify the solution and graph it on a number line.

13. Jake takes a taxi to tour a city. He is charged \$2.50, plus \$1.20 per kilometre.

Jake has \$12.00. How far can he travel?

- Choose a variable and write an inequality for this problem.
- Solve the inequality.
Explain the solution in words.
- Verify the solution.
- Graph the solution.

15. Janelle plans to replace the light bulbs in her house with energy saver bulbs.

A regular light bulb costs \$0.55 and has an electricity cost of \$0.004 20 per hour.

An energy saver bulb costs \$5.00 and has an electricity cost of \$0.001 05 per hour.

For how many hours of use is it cheaper to use an energy saver bulb than a regular bulb?

- Write an inequality for this problem.
- Solve the inequality.
Explain the solution in words.
- Verify the solution.
- Graph the solution.

18. A business must choose a company to print a promotional brochure.

Company A charges \$900 plus \$0.50 per copy.

Company B charges \$1500 plus \$0.38 per copy.

- How many brochures must be printed for the cost to be the same at both companies?
- How many brochures must be printed for Company A to be less expensive?
- How many brochures must be printed for Company B to be less expensive?

ANSWERS

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12. a) Let v dollars represent the money that Joel can deposit in his account. $212.35 + v \geq 750$
 b) $v \geq 537.65$; Joel can deposit \$537.65 or more in his account to avoid paying a monthly fee.
 c)



13. a) Let b dollars represent the money that Teagan should have in her savings before adding \$20. $b + 20 \geq 135.99$
 b) $b \geq 115.99$; Teagan should have \$115.99 or more in her savings before adding \$20.
 c)



14. a) Let m dollars represent the money that Marie can spend on a muffin. $3.45 + m \leq 4.85$
 b) $m \leq 1.40$; Marie cannot spend more than \$1.40 on a muffin.
 c)



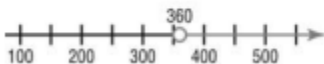
- d) Since \$1.40 is less than \$1.45, Marie cannot afford to buy the deluxe muffin.

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8. Let c represent the number of cars washed.
 $5c \geq 300$
 $5c \div 5 \geq 300 \div 5$
 $c \geq 60$

At least 60 cars would have to be washed.

10. a) $7.5s - 1200 > 1500$, where s is the whole number representing the number of tickets sold.
 b) $s > 360$; more than 360 tickets need to be sold.
 c)



13. a) Let k represent the number of kilometres driven. $2.5 + 1.2k \leq 12$
 b) $k \leq 7.91\bar{6}$ or $k \leq 7\frac{11}{12}$

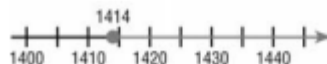
Jake can travel up to $7.91\bar{6}$ km for \$12.

d)



15. a) Let h represent the number of hours.
 $0.55 + 0.00420h > 5 + 0.00105h$
 b), c) $h > 1412.7$; Since the minimum cost of electricity, \$0.01, is for about 2 h use of the regular light bulb or for about 10 h use of the energy saver light bulb, we need to check the time of use near 1413 h for a more accurate solution. For 1413 h, electricity cost of regular light bulb: $\$0.55 + \$0.00420(1413) = \$6.48$
 For 1413 h, electricity cost of energy saver light bulb: $\$5.00 + \$0.00105(1413) = \$6.48$
 For 1414 h, electricity cost of regular light bulb: $\$0.55 + \$0.00420(1414) = \$6.49$
 For 1414 h, electricity cost of energy saver light bulb: $\$5.00 + \$0.00105(1414) = \$6.48$
 So, for 1414 h or more, it is cheaper to use an energy saver light bulb.

d)



18. a) 5000 brochures b) 0 to 4999 brochures
 c) More than 5000 brochures