Lesson 6: Fluency with Percents

Classwork

Opening Exercise

Solve the following problem using mental math only. Be prepared to discuss your method with your classmates.

Cory and Everett have collected model cars since the third grade. Cory has 80 model cars in his collection, which is 25% more than Everett has. How many model cars does Everett have?

Example 1: Mental Math and Percents

a. 75% of the students in Jesse's class are 60 inches or taller. If there are 20 students in her class, how many students are 60 inches or taller?

b. Bobbie wants to leave a tip for her waitress equal to 15% of her bill. Bobbie's bill for her lunch is $18. How much money represents 15% of the bill?

Exercises

1. Express 9 hours as a percentage of 3 days.

2. Richard works from 11:00 a.m. to 3:00 a.m. His dinner break is 75% of the way through his work shift. What time is Richard's dinner break?

3. At a playoff basketball game, there were 370 fans cheering for school A and 555 fans cheering for school B.

    a. Express the number of fans for school A as a percent of the number of fans for school B.

b. Express the number of fans for school B as a percent of the number of fans for school A.

c. What percent more fans were there for school B than for school A?

4. Rectangle A has a length of 8 cm and a width of 16 cm. Rectangle B has the same area as the first, but its length is 62.5% of the length of the first rectangle. Express the width of Rectangle B as a percent of the width of Rectangle A. What percent more or less is the width of Rectangle B than the width of Rectangle A?

5.   A plant in Mikayla's garden was 40 inches tall one day and was 4 feet tall one week later. By what percent did the plant's height increase over one week?

6.   Loren must obtain a minimum number of signatures on a petition before it can be submitted. She was able to obtain 672 signatures, which is 40% more than she needs. How many signatures does she need?

Problem Set

1. Micah has 294 songs stored in his phone, which is 70% of the songs that Jorge has stored in his phone. How many songs are stored on Jorge's phone?

2. Lisa sold 81 magazine subscriptions, which is 27% of her class's fundraising goal. How many magazine subscriptions does her class hope to sell?

3. Theresa and Isaiah are comparing the number of pages that they read for pleasure over the summer. Theresa read 2,210 pages, which was 85% of the number of pages that Isaiah read. How many pages did Isaiah read?

4. In a parking garage, the number of SUVs is 40% greater than the number of non-SUVs. Gina counted 98 SUVs in the parking garage. How many vehicles were parked in the garage?

5. The price of a tent was decreased by 15% and sold for $76.49. What was the original price of the tent in dollars?

6. 40% of the students at Rockledge Middle School are musicians. 75% of those musicians have to read sheet music when they play their instruments. If 38 of the students can play their instruments without reading sheet music, how many students are there at Rockledge Middle School?

7. At Longbridge Middle School, 240 students said that they are an only child, which is 48% of the school's student enrollment. How many students attend Longbridge Middle School?

8. Grace and her father spent $4\frac{1}{2}$ hours over the weekend restoring their fishing boat. This time makes up 6% of the time needed to fully restore the boat. How much total time is needed to fully restore the boat?

9. Bethany's mother was upset with her because Bethany's text messages from the previous month were 218% of the amount allowed at no extra cost under her phone plan. Her mother had to pay for each text message over the allowance. Bethany had 5,450 text messages last month. How many text messages is she allowed under her phone plan at no extra cost?

10. Harry used 84% of the money in his savings account to buy a used dirt bike that cost him $1,050. How much money is left in Harry's savings account?

11. 15% of the students in Mr. Riley's social studies classes watch the local news every night. Mr. Riley found that 136 of his students do not watch the local news. How many students are in Mr. Riley's social studies classes?

12. Grandma Bailey and her children represent about 9.1% of the Bailey family. If Grandma Bailey has 12 children, how many members are there in the Bailey family?

13. Shelley earned 20% more money in tips waitressing this week than last week. This week she earned $72.00 in tips waitressing. How much money did she earn last week in tips?

14. Lucy's savings account has 35% more money than her sister Edy's. Together, the girls have saved a total of $206.80. How much money has each girl saved?

15. Bella spent 15% of her paycheck at the mall, and 40% of that was spent at the movie theater. Bella spent a total of $13.74 at the movie theater for her movie ticket, popcorn, and a soft drink. How much money was in Bella's paycheck?

16. On a road trip, Sara's brother drove 47.5% of the trip, and Sara drove 80% of the remainder. If Sara drove for 4 hours and 12 minutes, how long was the road trip?