Student Guide

Workshop: Multiplication with Larger Numbers

Questions 1–28 (SG pp. 291–295)

1. $678; Possible response using mental math:
   $3 \times \$225 = \$675$ and add $3 = \$678$.

2. Luis and his sister can each go to camp for 1 week. Half of $500 is $250 and $250 is more than $226.

3. No. Possible response. They now have a total of $750 because $500 + 2 \times \$125 = \$750$. They need 4 x $226 for both children to go to camp for 2 weeks which would cost $904. That is more than the $750 they have.

4. $625; Multiplication methods will vary. Using mental math:
   $5 \times \$100 = \$500$ and $5 \times \$25 = \$125$.
   $500 + \$125 = \$625$.

5. 480 families;
   120 campsites $\times$ 4 campgrounds =
   480 campsites (one family per campsite)

6. 960 tents; 480 campsites $\times$ 2 tents = 960 tents

7. Yes, the supplies total about $50;
   $20 + 4 + 25 + 4$ is a little more than $50. So $60 is enough money to pay for the supplies; an estimate is a good choice because an exact answer is not needed.

8. $70 for firewood; 25×2 bundles = $50,
   $10 \times 2 = \$20$, $50 + \$20 = \$70$

9. 5040; $254 \times \$10 = \$2540$, $100 \times \$25 = \$2500$. So, $2540 + \$2500 = \$5040$

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●**10.** Ana's older brother, Felipe, is hanging a clothesline to dry towels. He wants to hang three lines at different heights between two trees. He measures the distance between the trees to be about 17 feet and plans to tie the ropes to the trees. How much rope would you tell Felipe to get to put up the three clotheslines? Explain your answer.

●**11.** Ana's parents ask the children to help put up the tent. Ana looked at her watch when they began. It was 2:06. They finish setting up the tent at 2:52. How long did it take them to set up the tent?

Camping Adventures

Show your thinking for each problem you solve. On your paper, circle the problems for which you chose estimation as the most efficient strategy.
Ana, who is 10 years old, is camping with her 12-year-old brother Felipe, her 5-year-old sister Dalia, and her parents.

■**12.** One evening, Ana and her family eat dinner at a restaurant in a nearby town. The restaurant had an "all-you-can-eat" fish dinner. The cost is $7.00 for adults, $5.00 for children ages 6–11, and $2.50 for children ages 3–5. If the whole family orders the fish dinner, how much will the total bill be?

Ana's 11-year-old cousin Roberto, his mother, and his little sister Angela come to the park on Friday. The families decide to go canoeing together. It costs $8.00 to rent a canoe for 1 hour. Each canoe holds 3 people.

■**13.** Every person who is in a boat needs a life jacket. How many adult life jackets do they need? (Adults are ages 12 and up.) How many children's life jackets do they need?

■**14.** How many canoes will they need to rent? There must be at least one adult in every canoe. (Adults are ages 12 and up.) They don't want to spend more money on rental than they have to. Draw a picture of how Ana's and Roberto's families can seat themselves in the canoes.

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10. At least 60 feet of rope. Round 17 up to 20; $20 \times 3 = 60$. It's a good idea to round up, because you need enough rope to go around the trees and be tied in knots. Depending on the size of the trees, you may need more rope.

11. 46 minutes; $2:52 - 2:06 = 46$ minutes

12. $28.50; $7 + $7 + $7 + $5 + $2.50 = 28.50

13. 4 adult life jackets and 4 children's life jackets.

14. 3 canoes; pictures may vary. One will have 1 adult and 2 children, a second canoe will have 2 adults (including Felipe) and 1 child, and the third canoe will have 1 adult and 1 child.

■**15.** How much will they have to pay to canoe for 1 hour?

■**16.** How much will they have to pay to canoe for 2 hours?

■**17.** **A.** After canoeing, Ana's and Roberto's families decide to stop for frozen yogurt at the snack shop. A single-dip cone is 69¢. The price includes tax. Estimate how much money is needed to buy a cone for every person in both families.
B. Ana gives the cashier $10.00 to pay for all the cones. About how much change will she get back?

■**18.** The families decide to go on a long hike Saturday morning. Ana's father brought ingredients to make gorp. Gorp is a high-energy snack that is easy to take on a hike. Here is his recipe for 4 servings of gorp:

> **GORP**
>
> 1 cup raisins
> 1 cup peanuts
> $\frac{1}{2}$ cup dried apples
> $\frac{1}{2}$ cup dates
> $\frac{1}{2}$ cup almonds
> $\frac{1}{2}$ cup dried apricots

Ana's father wants to make a serving of gorp for everybody who is hiking. How many servings of gorp does he need to make?

■**19.** How many cups of peanuts should he use?

■**20.** How many cups of dried apricots should he use?

■**21.** Driving home from their vacation, Roberto's mother says they will travel about 50 miles in 1 hour. It takes them about 6 hours to get home. About how far is the park from their home?

●★■**22.** Make up a story for each of the multiplication problems below and solve the problems. Your story can be about camping or anything else.

12	8	$1.75
×8	×6	×8

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15. $24; $8 \times 3 = 24

16. $48; $8 \times 3 \times 2 = 48

17. **A.** Estimates will vary. One possible solution: About $5.60; $8 \times 70¢ = 5.60: an estimate is a good choice because a quick answer is needed.

B. Estimates will vary. One possible solution: $4.40; $10 - $5.60 = 4.40: an estimate is a good choice because an exact answer is not needed.

18. 8 servings because there are 8 people between the two families.

19. 2 cups of peanuts

20. 1 cup of dried apricots

21. About 300 miles; 50 miles $\times$ 6 hours $= 300$ miles; estimate is a good choice because an exact answer is not needed.

22. Stories will vary. 96; 48; $14.

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23. $80 to camp for 5 nights;
$16 × 5 nights = $80

24. $60 to camp for 5 nights;
$12 × 5 nights = $60

25. $20 more; $80 − $60 = $20

26. No, he does not have enough money,
$16 × 3 = $48, $80 + $48 is more than $100;
an estimate is good choice, because we do not
need an exact answer.

27. $315; $105 × 3 nights = $315

28. $384; 9 × $16 = $144, 20 × $12 = $240,
$240 + $144 = $384

Camping Fees

Show your thinking for each problem you solve. On your paper, circle the
problems for which you chose estimation as the most efficient strategy.

✓ **Check-In: Questions 23-28**

Ana and her family are going camping at the Potawatomi (pod-a-wad-to-mi) State
Park in Wisconsin. The fee to camp in the park is $12.00 a night for families who
live in Wisconsin and $16.00 a night for people who do not live in Wisconsin.

23. Ana's family is arriving on
Tuesday and staying until
Sunday afternoon. Ana's
family lives in Illinois. How
much does Ana's family have
to pay?

POTAWATOMI STATE PARK
CAMPING FEES
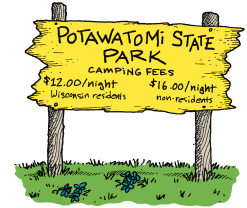$12.00/night
Wisconsin residents
$16.00/night
non-residents

24. Nadia, a fourth grader from
Milwaukee, Wisconsin, is also
camping from Tuesday until
Sunday. How much does
Nadia's family pay to stay at
the park?

25. How much more does Ana's
family pay than Nadia's?
Explain how you decided.

26. Ana's family decides to stay at the park another 3 nights. Ana's father
brought $100 to pay the camping fees. Does he have enough money for all
the nights?

27. The Smith family decides to have their family reunion at Potawatomi State
Park. The large group campsites are $105 per night. The family reunion
starts Thursday afternoon and ends Sunday afternoon. How much does the
Smith family have to pay?

28. One night in August, there are 9 out-of-state families and 20 Wisconsin
families camping at the state park. How much money did the park collect in
camping fees that night?

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