

Additional Practice 8-9

Make Sense and Persevere

Another Look!

Last weekend Troy spent $\frac{3}{4}$ hour doing math problems. He took 3 times as long to finish his science project. Then he spent $1\frac{1}{4}$ hours writing an essay. How much time did Troy spend on these assignments?



Make sense of the problem and then plan how to solve it.

Tell how you can make sense of the problem.

I know that Troy spent $\frac{3}{4}$ hour doing math problems and 3 times as long on his science project.

He spent $1\frac{1}{4}$ hours writing an essay.

Tell how you can persevere in solving the problem.

I need to determine how much time Troy spent on the assignments.

First, you need to find the amount of time Troy spent on his science project.

$$3 \times \frac{3}{4} = \frac{3}{1} \times \frac{3}{4} = \frac{9}{4} = 2\frac{1}{4} \text{ hours}$$

Then add to calculate the total time.

$$\frac{3}{4} + 2\frac{1}{4} + 1\frac{1}{4} = 4\frac{1}{4} \text{ hours}$$

Troy spent $4\frac{1}{4}$ hours on the assignments.

Make Sense and Persevere

Debra's rectangular vegetable garden measures $9\frac{1}{3}$ yards by 12 yards.

A bottle of garden fertilizer costs \$14.79. If Debra needs to mix $\frac{1}{8}$ cup of fertilizer with water for each square yard of her garden, how many cups of fertilizer does she need?

- How can you make sense of the problem?

Sample answer: Debra needs $\frac{1}{8}$ cup of fertilizer for each square yard of her garden, so I need to find the number of square yards in her garden.

- Is there any information that is not needed to solve the problem?

Yes; the cost of a bottle of fertilizer is not needed.

- How can you persevere in solving this problem? What is the answer?

First, find the total number of square yards. Then, multiply that number by $\frac{1}{8}$ to find how many cups of fertilizer she needs.

$$9\frac{1}{3} \times 12 = 112; 112 \times \frac{1}{8} = 14. \text{ She needs 14 cups.}$$

Remember to check that your work makes sense.



Performance Task

Children's Costumes

Mrs. Lin is sewing costumes for her grandchildren. She is making three lion costumes, one zebra costume, and two bear costumes. Fabric costs \$7.49 per yard. How much fabric does Mrs. Lin need?

Children's Costumes	
Costume	Fabric (yards)
Bear	$2\frac{1}{4}$
Lion	$1\frac{2}{3}$
Zebra	$2\frac{5}{8}$

4. **Make Sense and Persevere** What do you know? What are you asked to find? Is there any information you do not need?

There are 3 lion, 1 zebra, and 2 bear costumes. Fabric costs \$7.49 per yard. Each bear costume needs $2\frac{1}{4}$ yd, each lion needs $1\frac{2}{3}$ yards, and the zebra needs $2\frac{5}{8}$ yards. How much fabric Mrs. Lin needs; the cost of the fabric

5. **Make Sense and Persevere** What do you need to find before you can answer the final question?

The amount of fabric needed for the 3 lion costumes and for the 2 bear costumes

6. **Model with Math** Write equations to represent the information you described in Exercise 5.

Lion costumes: $3 \times 1\frac{2}{3} = 5$;
5 yards; Bear costumes: $2 \times 2\frac{1}{4} = 4\frac{1}{2}$; $4\frac{1}{2}$ yards

7. **Make Sense and Persevere** Solve the problem.

$12\frac{1}{8}$ yards; $5 + 2\frac{5}{8} + 4\frac{1}{2} = 12\frac{1}{8}$

8. **Construct Arguments** Explain why your answer makes sense.

Sample answer: I estimated:
 $(3 \times 2) + 3 + (2 \times 2) = 13$ which is
close to $12\frac{1}{8}$.

Remember that good problem solvers keep asking themselves if their work makes sense.

