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Pre-Test/Post-Test Administration

test administration

**Pre-test:** Let students know that this test will help you determine what they already know. Explain that the module will help students learn how to solve problems on the test that seem difficult now.

**Post-test:** Explain that this test will help you determine what students have learned about proportional reasoning.

**Online Testing**

Once your testing window has started, you can begin testing.

- Seat students individually in front of a computer.
- Give each student a piece of scratch paper.
- Make sure that students have pencils.
- Have students use their access codes to log in to the pre-test.
- Before each student begins the test, confirm that he or she is taking the correct test.

Tell students that:

- Each question will be displayed on the computer screen. Students should select the answer they think is best by clicking on the option choice and then clicking to confirm the choice.
- After students answer a question, the next question will appear on the computer screen.
- Students may opt to skip a question and flag it to come back to before ending the test.

During the test:

- Observe students as they work to make sure that they are actively engaged in the testing process.
- Support any students who seem to find the material challenging. Encourage them to make a good estimate for any problem they find difficult.
- You may wish to provide manipulatives.

Once students have answered all the questions, they should follow the online prompts to conclude the test.

**Pre-test:** If any students finish the test early, group them into pairs. Give each of the students a Student Book. Tell them to read the instructions on page 1 and start working with their partners.
Pre-Test/Post-Test Administration

Paper-and-Pencil Test

- Print copies of the test and answer sheet from ARO for each student.
- Seat students individually.
- Distribute tests, answer sheets, and scratch paper.
- Make sure that students have #2 pencils.
- Instruct students to fill in the answers on their answer sheets.

During the test:
- Observe students as they work to make sure that they are actively engaged in the testing process.
- Support any students who seem to find the material challenging. Encourage them to make a good estimate for any problem they find difficult.
- You may wish to provide manipulatives.

After students finish, collect their tests, answer sheets, and scratch paper. You will need to upload students’ answers to the ARO system so you can analyze the results.

Pre-test: If any students finish the test early, group them into pairs. Give each of the students a Student Book. Tell them to read the instructions on page 1 and start working with their partners.

analyzing results

Irrespective of the method (online or paper-and-pencil) that you chose to administer the test, your students must be enrolled in the ARO system in order for you to obtain computer-generated reports.

These reports:
- Offer rich, instructionally-relevant information to teachers and administrators at the individual student, class, grade, school, and district levels
- Include total test score performance information and item-level analysis for each student and for all students combined
- Are important references in helping you assess the misconceptions your students are struggling with and decide what concepts to focus on during the module

For results:
- Online Testing: ARO will automatically generate performance reports.
- Paper-and-Pencil Test: Upload students’ data to ARO. Once you have uploaded the data, ARO will generate performance reports.

Additional information about the online test reporting can be found on ARO.

Remember to give a copy of the reports to students’ regular mathematics teachers to help them plan subsequent instruction.
reflection

When students finish working on the test, ask them to open the Student Book and continue with the work time or reflection task that follows.
preparation

• Make a copy of the appropriate checkpoint lesson, answer sheet, and answer key for each student.
• Hand out the checkpoint lesson to each student.

setting the direction

Lessons 5, 10, and 15 of this module are checkpoint lessons. In checkpoint lessons, students practice skills by answering multiple-choice and free-response questions in a test-like atmosphere, and then work in groups to “debug” their procedural knowledge. Each checkpoint lesson is structured as follows:

1. Students work independently on Checkpoint A.
2. Students work in groups to debug their work, concentrating on procedural knowledge.
3. Students work independently on either Checkpoint B or C, based on their success with Checkpoint A. Checkpoint C is easier than Checkpoint B.
4. Students meet in groups to debug their work.

The problems in the checkpoints follow up on the week’s work.

When students have completed Checkpoint A, collect their answer sheets before the debug group. Enter the data from Checkpoints 1A, 2A, and 3A into ARO. The report generated by ARO will help you assess whether students are on track and making sufficient progress.

checkpoint A

A. Work on Checkpoint A

Have students work individually to answer the multiple-choice and free-response problems found in Checkpoint A. Have students show their work in the checkpoint lesson and then transfer their answers to the answer sheet. Give students about 10–15 minutes to complete the checkpoint.

Observe students as they work in order to identify students who are struggling. You will use this information to decide how to organize the debug groups, and to determine which students will work on Checkpoint B versus Checkpoint C later in the lesson.

B. Model Debug Groups in Lesson 5

The debug groups are an important step of the checkpoint lesson because they give students additional opportunities to engage in the mathematical practice of constructing viable arguments and critiquing the reasoning of others (MP3). Many of the problems in the checkpoints ask students to reason abstractly and quantitatively (MP2) and to attend to precision (MP6). The debug discussions give students a chance to refine their understanding of the content while engaging in these mathematical practices.
In Lesson 5 during Checkpoint 1A, you will deviate slightly from the typical checkpoint lesson structure by first modeling the debug group routine. Spend about 5 minutes modeling this routine in front of the class.

Create a model group to help you. Choose students who have been willing to share their mistakes during the first four lessons. Participate as a member of the group in order to model how students should debug their work.

Model the following debug group routine, which students will use in all checkpoint lessons:

- Hand out the answer key for Checkpoint 1A.
- First, group members check their answers against the answer key. Students can check their own work or they can exchange work with a partner and check each other’s work. You can determine the rules for the process, or you can decide as a group.
- Next, members of the group should each choose a problem that they got wrong, show their work for the problem, and ask the group, “What am I doing wrong?” As resources, group members can use their own work, information they have from earlier lessons, the procedural help in the back of the Student Book, and the Concept Book.
  - As a member of the model debug group, model for students how you would present an incorrect answer. Tell them you got 1 gallon per minute for the answer for problem 7. What did you do wrong? Listen to students’ advice. Ask them where you might get more help. Hopefully, some students will suggest page 71 of the procedural help, which explains unit rates.
  - Any students who got all of the problems right can share something interesting or helpful about their solutions.

You might not want to take the time to have all the students in the model group present their work. However, emphasize to students that in their own groups, all students should present their work. Be sure to spend the time required for your students to understand the purpose and routines of the debug process.

In subsequent checkpoint lessons, you may skip Part B—Model Debug Groups in Lesson 5.

**C. Debug Groups**

Divide students into groups of three or four students each and have the groups follow the debug routine. Try to balance the groups with regard to strong and weak students, based on your earlier observations. In Lesson 5, integrate students from your model group into the other groups.

**english language learners**

Modeling is an easy yet effective strategy to use when working with ELL students. Demonstrating an activity step by step allows students to focus on the task rather than on the language embedded in the instructions.

**teaching strategies**

Consider using cards to direct students to their debug groups. As you decide which group is right for each student, leave a corresponding card on each student’s desk so students will know which debug group to go to when the time comes.
Make sure all students have a copy of the answer key for the appropriate checkpoint.

Some groups may need more help than others. Spend extra time with groups that need more help, but be sure to take time to monitor all of the groups.

**checkpoints B and C**

**A. Work on Checkpoint B or C**

Give the debug groups about 15 minutes to finish. Then assign students to work on either Checkpoint B or Checkpoint C. Checkpoint C is easier than Checkpoint B, so assign Checkpoint C to any students who had difficulty with Checkpoint A. Allow 7–10 minutes for the second checkpoint.

Observe students as they work to assess whether they still need help with the material—either individually or as a class.

**B. Debug Groups**

Hand out the answer key for the appropriate checkpoint.

If you have time, form debug groups again and have them follow the debug routine. If you run short of time, just have students check their answers using the answer keys.

Spend time with students who are struggling.

**reflection**

When you have about 2 minutes left, stop the debug groups, even if they are not finished. Have students respond to the reflection prompt in the Student Book.
setting the direction

For each problem, circle the correct answer or write your solution. Show your work. Copy your answers to the Checkpoint 1A answer sheet. Turn in your answer sheet to your teacher and get an answer key. Check your answers against the answer key. Then have each person in your group share one problem with the group.

• If you got one or more problems wrong, select one and ask the group, “What did I do wrong in this problem?”

• If you answered all the problems correctly, share with the group something that you did to solve a problem that you think was interesting or unusual.

To help you and the members of your group, use the procedural help on page 71 at the end of the Student Book or use the Concept Book pages 291–313.

Then complete either Checkpoint 1B or Checkpoint 1C as instructed by your teacher. When completed, check your answers against the answer key. Have one person in your group share a problem using the routine described above.

checkpoint 1A

1. Jessica uses 3 pitchers of juice to fill 25 juice glasses. How many juice glasses can she fill or partially fill with one pitcher? Write your answer as a unit rate.

2. If it took Jessica 10 minutes to fill 25 juice glasses, what is her rate per minute?
3. What is Jessica’s rate per hour for filling juice glasses?

4. What ratio is equivalent to the ratio 2 to 3.5?
   
   A 1 : 1.2  
   B 2 : 4  
   C 4 : 7  
   D 2 : 7  

5. There are 5,280 feet in a mile so the unit rate of feet per mile is 5,280 feet per mile. What is the unit rate in yards per mile?

6. A nurse holds your wrist and looks at her watch. In 10 seconds she counts to 12. What is your pulse rate in beats per minute?
7. Troy is filling a small pool. The hose delivers 2 gallons of water every 30 seconds. What is the unit rate in minutes?

8. Troy fills another pool that is the same size with a different hose. This hose delivers 1.5 gallons of water every 25 seconds. If he starts filling both pools at the same time, which pool will be full first?

9. Chocolate Almond Clusters cost $4.95 per pound in the bulk section of the grocery store. A 6-ounce package costs $2.31. What is the price per pound for the package? (Remember: There are 16 ounces in a pound.)

10. Shari want to buy 1.5 pounds of the almond clusters in problem 9.
    How much will she pay if she buys 1.5 lb in bulk?
1. Sally walks 20 minutes to get to school each day.
Her school is $\frac{3}{4}$ mile from her house.
What is her walking speed?

A 2.25 miles per hour  
B 5 miles per hour  
C 1.5 mile per hour  
D 2.75 miles per hour

2. Tran swims 6 laps in a pool that is 25 meters long. It takes him 5 minutes.
What is his rate?

A 1.2 laps per minute  
B 0.8 laps per minute  
C 1.5 laps per minute  
D 1.1 laps per minute

3. What is Tran’s rate in meters per minute?

A 20 meters per minute  
B 37.5 meters per minute  
C 25 meters per minute  
D 30 meters per minute
4. When Rosa’s mother was filling the gas tank of her car, Rosa noticed that it took 1.5 minutes to pump 3.4 gallons of gas. What is the unit rate to the nearest hundredth?

   A 2 gallons per minute  
   B 1.7 gallons per minute  
   C 2.27 gallons per minute  
   D 44 gallons per minute

5. Mrs. Cole’s English class reads aloud at the rate of 10 pages per class period. How many classes will it take them to read a 78 page story?

Check your answers using the Checkpoint 1B Answer Key. Then share one problem with the group.
1. Ricardo walks 7 miles in 2 hours. What is his unit rate of walking?

   A. 3.5 miles per hour
   B. 3 miles per hour
   C. 2.9 miles per hour
   D. 2 miles per hour

2. It took Julian’s father 4 hours to drive Julian 185 miles to his uncle’s farm. What was the average speed of the car?

3. Julian unloads bales of hay into the barn at his uncle’s farm. If he can unload 6 bales in 15 minutes, how many bales can he unload in an hour?

   A. 90 bales
   B. 24 bales
   C. 21 bales
   D. 18 bales

4. Julian can feed hay to 4 horses in 10 minutes. What is his unit rate in horses fed per hour?

5. Sharon can buy a pound of tomatoes for $1.29. How much will she pay for $3 \frac{1}{2}$ lbs?

Check your answers using the Checkpoint 1C Answer Key. Then share one problem with the group.
Class Information

School ________________________________________________________________

City ______________________________________________ State ______________

Teacher (mathematics class) ______________________________________________

Student Information

Grade _______

First name ________________________________

Last name ________________________________

Date of birth _____ (month) _____ (day) _____(year)

Male ☐ Female ☐

How many years have you been at this school? _______ years

Do you usually speak English at home? Yes ☐ No ☐

Does anyone in your home usually speak a language other than English?

Yes ☐ No ☐
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Checkpoint 1A

1. 25 glasses per 3 pitchers = 8.33 glasses per pitcher

2. 2.5 glasses per minute

3. Jessica’s rate per hour is (2.5 glasses per minute) • 60 minutes = 150 glasses per hour

4. 4:7

5. (5280 feet per mile) ÷ (3 feet per yard) = 1,760 yards per mile

6. (12 beats per 10 seconds) • (60 seconds per minute) = 72 beats per minute

7. 4 gallons per minute

8. Since the second pool fills at a rate of (1.5 gallons per 25 seconds) • (60 seconds per min) = 3.6 gallons per minute and the first fills at a rate of 4 gallons per minute, the 1st pool will be first to fill.

9. ($2.31 per 6 oz) • (16 oz per lb) = $6.16 per pound

10. 4.95 • 1.5 = 7.425
    Shari will need to pay $7.43 to buy 1.5 pounds in bulk.
Checkpoint 1B

1. A 2.25 miles per hour

2. A 1.2 laps per minute

3. D 30 meters per minute

4. C 2.27 gallons per minute

5. 78 pages ÷ 10 pages per class period = 7.8 class periods

Checkpoint 1C

1. A 3.5 miles per hour

2. 46.25 miles per hour

3. B 24 bales

4. (4 horses per 10 min) • (60 min per hour) = 24 horses fed per hour

5. $1.29 • 3 \frac{1}{2} = 4.515 or $4.52
setting the direction

For each problem, circle the correct answer or write your solution. Show your work. Copy your answers to the Checkpoint 2A answer sheet. Turn in your answer sheet to your teacher and get an answer key. Check your answers against the answer key. Then have each person in your group share one problem with the group.

- If you got one or more problems wrong, select one and ask the group, “What did I do wrong in this problem?”
- If you answered all the problems correctly, share with the group something that you did to solve a problem that you think was interesting or unusual.

To help you and the members of your group, use the procedural help on page 72 at the end of the Student Book or use the Concept Book pages 255–259.

Then complete either Checkpoint 2B or Checkpoint 2C as instructed by your teacher. When completed, check your answers against the answer key. Have one person in your group share a problem using the routine described above.

checkpoint 2A

1. The ratio of the golden mean is approximately 1:1.6. What are 3 equivalent ratios?
   A 7:11  3:48  5:8  B 2:3.2  3:4.8  7:11  C 3:4.8  5:8  4:6.4  D 5:8  2:3.2  2:3.6

2. A rectangle is 2 cm wide and 7 cm long. What is the scale factor that will make a rectangle that is 5 cm wide and 17.5 cm long??
   A 3.5  B 2.5  C 2.7  D 5

3. There are 3 triangles with the following sides:
   Triangle A
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   \text{4} \\
   \text{5}
   \end{array}
   \]
   Triangle B
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   \begin{array}{c}
   \text{6} \\
   \text{7} \\
   \text{8}
   \end{array}
   \]
   Triangle C
   \[
   \begin{array}{c}
   \text{9} \\
   \text{12} \\
   \text{15}
   \end{array}
   \]
   Which 2 triangles are similar?
4. A rectangle has a length of 5 units and a width of 2 units. Which of the following describe a rectangle that is similar?
   A. A rectangle with length of 17.5 units and width of 7 units.
   B. A rectangle with length of 10 units and width of 2.5 units.
   C. A rectangle with length of 2 units and width of 1 unit.
   D. A rectangle with length of 17 units and width of 6 units.

5. Rosa is building vegetable beds for her garden. She already has one that is 4 feet wide by 8 feet long. She wants a new bed that is similar to the first but is only 3 feet wide. How long will she need to make the new bed?

6. On a map, 10 centimeters equals 1,000 km. What does 1 cm equal?
7. Jorge has a ball that has a volume of 3 cubic units. If Tony’s ball has a volume of 24 cubic units, what is the scale factor from Jorge’s ball to Tony’s ball?

8. Ali is trying to put 3 pictures on her wall. But first she will enlarge the pictures. If her wall space is 4 feet tall by 4 feet long and the pictures are all 12 inches by 12 inches, what is the largest scale factor she can use to enlarge them?

   - A 0.8
   - B 1.3
   - C 3
   - D 2.5

9. A cube is 3 units on a side. Another cube is larger by a scale factor of 2. What is the volume of each cube?

10. A map has a scale of 1 cm : 40 km. If two cities were 160 kilometers apart, how far away would they be on the map?
checkpoint 2B

1. John has a map that shows Kelly’s house is 1 inch away from his house. He knows that at his usual speed, he walks 1 mile in 20 minutes and that he has to walk for 40 minutes to get to Kelly’s house from his house. How far is Kelly’s house from his?
   - A 1 mile
   - B 20 miles
   - C 1.2 miles
   - D 2 miles

2. What is the scale factor between the map and the actual distance in problem 1?
   - A 2 inches : 2 miles
   - B 40 minutes : 2 miles
   - C 1 inch : 2 miles
   - D 1 inch : 1 mile

3. Juanita is baking cookies. Her recipe makes 24 cookies and calls for \( \frac{1}{4} \) pound of butter. How much butter should she use if she wants to make 36 cookies?

4. Michael joins Rosa while she is baking. He wants to make a dozen cookies for his friends. How much more butter should Rosa and Michael add?

5. Sara wants to enlarge a photo that is 4 inches by 5 inches. She wants to increase the size by a scale factor of 2.5. What are the dimensions of the frame she will need to frame the larger photo?

Check your answers using the Checkpoint 2C Answer Key. Then share one problem with the group.
1. A map has a scale of 1 inch : 100 miles. If two cities were about 4 inches from each other on the map, what is the approximate distance between the cities in miles?
   A. About 25 miles  
   B. About 400 miles  
   C. About \(\frac{1}{4}\) mile  
   D. About 4,000 miles

2. Michael enlarges a photo that is 3 inches by 5 inches. He wants to increase the size by a scale factor of 2. What are the dimensions of the frame he will need to frame the new photo?

3. John is baking bars. His recipe makes 24 bars and calls for 2 cups of sugar. How much sugar would he use to bake 36 bars?

4. A triangle has sides of 3, 4, and 5. If you increase the size by a factor of 3, the new triangle would be:
   A. 6, 7, 8  
   B. 4, 5, 6  
   C. 9, 12, 15  
   D. 1, 2, 3

5. A rectangle measures 6 cm by 8 cm. What scale factor will make the rectangle 15 cm by 20 cm?

Check your answers using the Checkpoint 2C Answer Key. Then share one problem with the group.
Class Information

School ________________________________________________________________

City __________________________________________ State ________________

Teacher (mathematics class) ____________________________________________

Student Information

Grade _______

First name __________________________________________________________

Last name __________________________________________________________

Date of birth _____ (month) _____ (day) _____(year)

Male ☐ Female ☐

How many years have you been at this school? _______ years

Do you usually speak English at home? Yes ☐ No ☐

Does anyone in your home usually speak a language other than English?

Yes ☐ No ☐
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Checkpoint 2A

1. C 3:4.8, 5:8, 4:6.4

2. B 2.5

3. Triangles A and C are similar

4. A A rectangle with length of 17.5 units and width of 7 units.

5. The new bed should be 6 feet long.

6. 1 cm = 100 km

7. 24 ÷ 3 = 8 so Tony’s ball has 8 times the volume of Jorge’s. Since the difference is in 3 dimensions and the scale factor is a one-dimensional value, you have to take the cube root of 8 to get the scale factor of 2.

8. B 1.3

9. Volume of cube #1: \(3 \times 3 \times 3 = 27\) cubic units
   Volume of cube #2: \(6 \times 6 \times 6 = 216\) cubic units

10. 4 cm
Checkpoint 2B

1. ☐ 2 miles

2. ☐ 1 inch : 2 miles

3. Use a scale factor of 1.5 since $24 \cdot 1.5 = 36$ (divide 36 by 24 to get 1.5)
   So Juanita must multiply the amount of butter by 1.5 or add half again as much butter:
   $\frac{1}{4}\text{ lb} \cdot 1.5 = \frac{1}{4} \cdot \frac{3}{2} = \frac{3}{8}\text{ lb}$ of butter
   or
   $\frac{1}{4}\text{ lb} + \frac{1}{8}\text{ lb} = \frac{2}{8}\text{ lb} + \frac{1}{8}\text{ lb} = \frac{3}{8}\text{ lb}$ of butter

4. They should add $\frac{1}{8}$ of a pound more butter to make the extra 12 cookies.

5. Sara should multiply each side of the photo by the scale factor of 2.5 to get the dimensions of the new frame. So her new frame should be: 10 inches by 12.5 inches.

Checkpoint 2C

1. ☐ About 400 miles

2. 6 inches by 10 inches

3. 3 cups of sugar

4. ☐ 9, 12, 15

5. 2.5
setting the direction

For each problem, circle the correct answer or write your solution. Show your work. Copy your answers to the Checkpoint 3A answer sheet. Turn in your answer sheet to your teacher and get an answer key. Check your answers against the answer key. Then have each person in your group share one problem with the group.

- If you got one or more problems wrong, select one and ask the group, “What did I do wrong in this problem?”
- If you answered all the problems correctly, share with the group something that you did to solve a problem that you think was interesting or unusual.

To help you and the members of your group, use the procedural help on pages 73–76 at the end of the Student Book or use the Concept Book pages 315–334.

Then complete either Checkpoint 3B or Checkpoint 3C as instructed by your teacher. When completed, check your answers against the answer key. Have one person in your group share a problem using the routine described above.

checkpoint 3A

1. Jamal wants to buy strawberries to make smoothies. He figured out that he could use 5 big strawberries to make 2 smoothies. If he makes a ratio table to figure out how many strawberries he needs to make more smoothies, which of the following ratios could he use?

   A 4:2  B 5:1  C 1.5:1  D 7.5:3

2. Fill in the ratio table for Jamal:

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<th>Smoothies</th>
<th>1</th>
<th>2</th>
<th>10</th>
<th>50</th>
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<tbody>
<tr>
<td>Strawberries</td>
<td>5</td>
<td>7.5</td>
<td>12.5</td>
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</tbody>
</table>

3. Jamal decided to make smoothies to sell at the crafts fair. He thinks he will sell 30 smoothies. Use the information in problems 1 and 2 to figure out how many strawberries he should buy.

   A 125  B 70  C 75  D 50
4. Fill in the ratio table below:

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<th>1</th>
<th>2</th>
<th>5</th>
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<tr>
<td>$y$</td>
<td>0</td>
<td>6</td>
<td>8</td>
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</tbody>
</table>

5. Use the table from problem 4 and graph the points on the coordinate plane below.

6. What is the constant of proportionality in this table?

<table>
<thead>
<tr>
<th>$x$</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>$y$</td>
<td>4.8</td>
<td>7.2</td>
<td>9.6</td>
<td>12</td>
</tr>
</tbody>
</table>

A $\frac{3}{2}$  B 2.8  C 2.4  D 1.5
7. Which of these tables are ratio tables?

<table>
<thead>
<tr>
<th></th>
<th>I</th>
<th>II</th>
<th>III</th>
</tr>
</thead>
<tbody>
<tr>
<td>x</td>
<td>1 2 3 4</td>
<td>2 5 6 8</td>
<td>1 3 12 36</td>
</tr>
<tr>
<td>y</td>
<td>2 4 9 15</td>
<td>7 17.5 21 28</td>
<td>1.2 3.6 14.4 43.2</td>
</tr>
</tbody>
</table>

A Only I  B II and III  C I and III  D Only III

8. Using the constant of proportionality \( k = 5 \), complete this table.

<table>
<thead>
<tr>
<th>x</th>
<th>0 1 2 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>y</td>
<td>10</td>
</tr>
</tbody>
</table>

9. Using the table from problem 8, sketch a graph on the coordinate grid at right.

10. Write the function that uses the constant of proportionality \( k = 5 \) and that represents the graph in problem 9.
Candles are $5.52 for a package of 8. Fill in the table:

<table>
<thead>
<tr>
<th>Number of Candles</th>
<th>1</th>
<th>2</th>
<th>5</th>
<th>8</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost ($)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

What is the constant of proportionality in this equation?

\[ \frac{3}{8} = \frac{y}{x} \]

Use the coordinate grid below to sketch a graph of the values in this table. Then explain why or why doesn’t the table represent a proportional relationship.

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>y</td>
<td>1</td>
<td>3</td>
<td>5</td>
<td>7</td>
</tr>
</tbody>
</table>
4. Which equations represent proportional relationships?
   
   I  \( x + 2y = 3 \)
   II  \( 5 = x \)
   III  \( y = \frac{3}{4}x \)
   IV  \( 2x = y \)

   A  I and II  B  II and IV  C  III and IV  D  II, III, and IV

5. Julia wants to build a stage. She made a model that is 8 inches by 10 inches. She wants her stage to be 20 feet long. The price of plywood is $25 for a sheet that is 4 feet by 8 feet and she needs to cover her stage floor with plywood. How wide does she need to make the stage so that it has the same ratio as her model? Fill in the table to show how much she will pay for the plywood she needs.

<table>
<thead>
<tr>
<th>Sheets of Plywood</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost ($)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
1. Oranges are on sale for 98¢ per pound. Fill in the table:

<table>
<thead>
<tr>
<th>Oranges (in pounds)</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost ($)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. What is the constant of proportionality in this equation?
   \[ y = 2.3x \]

3. Tomas bought 6 ears of corn for $1.50. What does he pay for 1 ear?
   - A $0.25
   - B $1.50
   - C $25
   - D $150
4. Which graph represents the proportional relationship \( y = 3x \)?

![Graphs A, B, C, D](graphs.png)

5. Use the formula \( y = \frac{1}{2} x \) to fill in the table.

<table>
<thead>
<tr>
<th>( x )</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>4</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>( y )</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Check your answers using the Checkpoint 3C Answer Key. Then share one problem with the group.
**Class Information**

School ____________________________________________________________

City _____________________________ State ________________

Teacher (mathematics class) __________________________________________

**Student Information**

Grade ________

First name __________________________________________________________

Last name __________________________________________________________

Date of birth _____ (month) _____ (day) _____(year)

Male ☐ Female ☐

How many years have you been at this school? _______ years

Do you usually speak English at home? Yes ☐ No ☐

Does anyone in your home usually speak a language other than English?

Yes ☐ No ☐
Name _______________________________________

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Checkpoint 3A

1. ④ 7.5:3

2. | Smoothies | 1 | 2 | 3 | 5 | 10 | 50 |
   | Strawberries | 2.5 | 5 | 7.5 | 12.5 | 25 | 125 |

3. ④ 75

4. | x   | 0  | 1  | 2  | 2 ⅔ | 5  | 6  |
   | y   | 0  | 3  | 6  | 8   | 15 | 18 |

5. [Graph showing a linear relationship between x and y]
6. **C** 2.4

7. **B** II and III

8. For any value of $x$, the value for $y$ must be 5 times the value for $x$.
   Possible answer:
   
<table>
<thead>
<tr>
<th>$x$</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>$y$</td>
<td>0</td>
<td>5</td>
<td>10</td>
<td>15</td>
</tr>
</tbody>
</table>

9. Possible answer:

10. $y = 5x$; It is sometimes better to use an equation because you can always find a value for $y$ based on any value of $x$. 
Checkpoint 3B

1. | Number of Candles | 1   | 2   | 5   | 8   | 10  |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost ($)</td>
<td>0.69</td>
<td>1.38</td>
<td>3.45</td>
<td>5.52</td>
<td>6.90</td>
</tr>
</tbody>
</table>

2. $\frac{3}{8}$ or $\frac{8}{3}$

3. The table does not represent a proportional relationship because the graph does not go through the origin (the point (0,0)). Extra credit: $y = 2x + 1$

4. III and IV

5. The scale factor for the length and width of the stage is 2 feet per inch. So the stage must be 16 feet wide. So the area the stage will cover is: 16 feet × 20 feet = 320 sq ft

Each sheet of plywood will cover an area of:
4 feet × 8 feet = 32 square feet

So Julia will need 10 sheets of plywood.
Making a table:

<table>
<thead>
<tr>
<th>Sheets of Plywood</th>
<th>1</th>
<th>2</th>
<th>5</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost ($)</td>
<td>25</td>
<td>50</td>
<td>125</td>
<td>250</td>
</tr>
</tbody>
</table>

Julia will need to pay $250 for enough plywood to cover her stage.
Checkpoint 3C

1. | Oranges (in pounds) | 1  | 2  | 3  | 5  |
   | Cost ($)             | 0.98 | 1.96 | 2.94 | 4.90 |

2. 2.3

3. A $0.25

4. B

5. | x  | 0  | 1  | 2  | 4  | 6  |
   | y  | 0  | $\frac{1}{2}$ | 1  | 2  | 3  |
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