1.9 Unit Review

Unit 1: Basic Problem Solving and Mathematical Modeling

Name: _____ Date: _____ Class/Period: _____

Problem 1.112 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step.

A school has 8 classes with 26 students in each class. It also has 17 teachers. How many students are there? Identify any extra information.

Problem 1.113 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step.

A store puts the same number of notebooks into 12 boxes. How many notebooks are packed? State what information is missing.

Problem 1.114 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step.

A camp has 9 cabins with 14 campers each and 12 counselors. How many campers are at the camp?

Problem 1.115 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step.

A library has 1,340 books, donates 180, and buys 225. It is open 6 days each week. How many books does it have now?

Problem 1.116 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step.

A farmer packs 360 apples equally into some crates. How many apples are in each crate? State what information is missing.

Problem 1.117 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step.

A theater has 15 rows with 20 seats in each row. The stage has 4 curtains. How many seats are there?

Problem 1.118 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step.

Seven buses carry 42 students each. The students form 14 equal teams. How many students are on each team?

Problem 1.119 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step.

A school buys 18 packs of 25 pencils, gives away 90, and shares the rest among 12 classes. How many pencils does each class receive?

Problem 1.120 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step.

A bakery makes 14 trays of 24 rolls and sells 198. How many rolls remain?

Problem 1.121 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step.

A club collects 245 cans on Monday and 187 on Tuesday. The cans are packed into boxes of 18. How many full boxes can be filled?

Problem 1.122 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step.

A warehouse has 9 pallets with 48 boxes each. It ships 162 boxes and places the rest equally on 10 shelves. How many boxes go on each shelf?

Problem 1.123 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step.

A camp has 5 cabins of 18 campers and 5 cabins of 14 campers. The campers form 8 equal groups. How many campers are in each group?

Problem 1.124 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step.

Draw a tape diagram for: Kai has 48 cards. Zoe has 17 more cards than Kai. How many cards do they have altogether? Then solve.

Problem 1.125 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step.

Create a table to compare 8 boxes of 24 books with 6 boxes of 30 books. Which amount is greater?

Problem 1.126 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step.

Write a sequence of equations for: 126 red cones and 90 blue cones are divided equally among 9 teams. Then solve.

Problem 1.127 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step.

Create a model for 12 rows of 18 seats plus another section of 84 seats. Find the total capacity.

Problem 1.128 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step.

Use a comparison model: Team A scores 92 points. Team B scores 28 fewer. Find the combined score.

Problem 1.129 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step.

Create a model for 7 cartons of 36 bottles and 5 cartons of 24 bottles divided among 12 displays. Then solve.

Problem 1.130 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step.

A theater has 16 rows of 22 seats. If 49 seats are empty, how many people are seated?

Problem 1.131 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step.

A store has 148 red balloons and 116 blue balloons. They are divided equally among 11 bags. How many balloons go in each bag?

Problem 1.132 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step.

A school buys 24 packs of 15 notebooks and gives away 78. How many remain?

Problem 1.133 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step.

A museum has 175 visitors before lunch and 137 after lunch. Tickets cost 6 dollars each. How much money is collected?

Problem 1.134 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step.

A farmer packs 432 eggs into cartons of 12 and sells 19 cartons. How many eggs are sold?

Problem 1.135 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step.

Plan A has 9 rows of 28 seats. Plan B has 12 rows of 20 seats. Which plan has more seats, and how many more?

Problem 1.136 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step.

A library has 17 shelves with 32 books each and receives 86 more books. How many books does it have?

Problem 1.137 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step.

A coach has 96 red cones and 120 blue cones. The cones are shared equally among 12 teams. How many cones does each team receive?

Problem 1.138 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step.

A school orders 20 boxes of 24 pencils, gives 72 pencils to the office, and shares the rest equally among 12 classrooms. How many pencils does each classroom receive?

Problem 1.139 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step.

A food drive collects 8 cases of 30 cans and 6 cases of 24 cans. It donates 96 cans and divides the rest among 12 shelters. How many cans does each shelter receive?

Problem 1.140 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step.

A club sells 138 tickets on Friday and 162 on Saturday. Each ticket costs 5 dollars. The club spends 420 dollars. How much money remains?

Problem 1.141 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step.

A camp has 14 cabins of 16 campers. Thirty-two campers leave for a trip. The rest form 12 equal teams. How many campers are on each team?

Problem 1.142 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step.

A warehouse loads 7 trucks with 54 boxes and 5 trucks with 42 boxes. It unloads 168 boxes. How many boxes remain?

Problem 1.143 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step.

A bakery makes 9 trays of 36 cookies and 8 trays of 27 cookies. It packs all cookies equally into 20 boxes. How many cookies go in each box?

Problem 1.144 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step.

Plan A uses 13 vans with 16 seats. Plan B uses 9 buses with 24 seats. Which plan provides more seats, and how many more?

Problem 1.145 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step.

A store has 18 shelves with 30 games. It sells 144 games and places the rest equally into 12 bins. How many games are in each bin?

Problem 1.152 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step.

A number is multiplied by 6 and then increased by 11 to make 101. Find the number.

Problem 1.153 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step.

Mina has some cards, gives away 23, buys 4 packs of 10, and ends with 69. How many cards did she start with?

Problem 1.154 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step.

A bus holds 46 people. How many buses are needed for 325 people? Explain the remainder.

Problem 1.155 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step.

A factory packs 17 bottles per case. How many full cases can be packed from 296 bottles, and how many remain?

Problem 1.156 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step.

A number is increased by 8, multiplied by 5, and becomes 95. Find the number.

Problem 1.157 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step.

A theater row holds 18 people. How many rows are needed to seat 250 people?

Problem 1.158 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step.

A student solves a 205-student bus problem by writing $205 \div 48 = 4$ R 13, so 4 buses are needed. Explain and correct the reasoning.

Problem 1.159 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step.

A school buys 12 packs of 30 pencils, gives 60 to the office, and divides the rest among 10 classes. A student writes $12 \times 30 \div 10 = 36$. Identify the missing step and solve correctly.

Problem 1.160 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step.

A club collects 156 cans and 132 cans, then places them in 12 boxes. A student writes $156 + 132 = 288$ and stops. Explain what the result represents and finish the solution.

Problem 1.161 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step.

Plan A has 8 buses with 42 seats. Plan B has 11 vans with 30 seats. A student chooses Plan B because 11 is greater than 8. Evaluate the comparison.

Problem 1.162 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step. Create a model or organized plan, show connected calculations, interpret the result, and justify your conclusion. Use a separate sheet of paper when additional space is needed.

A school is ordering chairs for an assembly. The gym has 18 rows with 24 floor spaces in each row. The school already owns 275 usable chairs. New chairs are sold in bundles of 20.
Part A. Create a model for the number of additional chairs needed.
Part B. Determine the number of bundles the school must buy.
Part C. Explain how any remainder affects the purchase.

Problem 1.163 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step. Create a model or organized plan, show connected calculations, interpret the result, and justify your conclusion. Use a separate sheet of paper when additional space is needed.

A food bank receives 14 cases of 36 cans and 9 cases of 28 cans. It uses 180 cans to prepare emergency boxes. The remaining cans are divided equally among 12 shelves.
Part A. Create a model showing the order of the calculations.
Part B. Determine the number of cans on each shelf.
Part C. Explain why changing the order of subtraction and division would change the meaning of the result.

Problem 1.164 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step. Create a model or organized plan, show connected calculations, interpret the result, and justify your conclusion. Use a separate sheet of paper when additional space is needed.

A school has two plans for a field trip with 264 students and 18 adults.

- Plan A uses buses that hold 48 people and cost 410 dollars each.
- Plan B uses vans that hold 24 people and cost 225 dollars each.

Part A. Determine how many vehicles each plan requires.
Part B. Find the total cost of each plan.
Part C. Recommend one plan and justify your decision using capacity and cost.

Problem 1.165 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step. Create a model or organized plan, show connected calculations, interpret the result, and justify your conclusion. Use a separate sheet of paper when additional space is needed.

A reading program awards 4 points for each regular book and 7 points for each challenge book. A student reads 15 books and earns 78 points.
Part A. Create an organized table of possible combinations.
Part B. Determine the number of each type of book.
Part C. Explain how you know no other combination works.

Problem 1.166 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step. Create a model or organized plan, show connected calculations, interpret the result, and justify your conclusion. Use a separate sheet of paper when additional space is needed.

A school store begins with some notebooks. It sells 96 notebooks, receives 8 cartons of 24 notebooks, and ends with 340 notebooks.
Part A. Create a backward model for the situation.
Part B. Determine the starting number of notebooks.
Part C. Check your answer by following the events forward.

Problem 1.167 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step. Create a model or organized plan, show connected calculations, interpret the result, and justify your conclusion. Use a separate sheet of paper when additional space is needed.

A community center has 16 tables that each seat 8 people and 45 extra chairs. It expects 186 guests.
Part A. Create a model for the total seating capacity.
Part B. Determine whether the center has enough seating. If not, find the number of additional chairs needed.
Part C. Explain how your model supports the conclusion.

Problem 1.168 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step. Create a model or organized plan, show connected calculations, interpret the result, and justify your conclusion. Use a separate sheet of paper when additional space is needed.

A warehouse has 20 shelves. Twelve shelves hold 36 boxes each, and the other shelves hold 28 boxes each. The warehouse ships 240 boxes.

Part A. Create a model for the number of boxes remaining.

Part B. Find the number of boxes remaining.

Part C. A student writes $20 \times 36 - 240$. Explain why this equation does not represent the storage arrangement.

Problem 1.169 Directions:
The review is grouped by topic. Show a plan or model whenever the problem contains more than one step. Create a model or organized plan, show connected calculations, interpret the result, and justify your conclusion. Use a separate sheet of paper when additional space is needed.

A school fair sells 25 tickets. Game tickets cost 3 dollars, and meal tickets cost 8 dollars. The fair collects 120 dollars.

Part A. Create an organized model of possible ticket combinations.

Part B. Determine the number of each ticket sold.

Part C. Verify that the combination satisfies both the number of tickets and the amount collected.