

Name: _____ Date: _____

Spaceship Port

Exploring Remainders

Spaceships land in the city of Ozzie at Spaceship Port. Employees in the Landing Pad Department made the schedule below to show how many ships land each day. The schedule also shows the number of hours each pad is used each day. One of the employees checked the schedule and found that the number of ships landing was too low for each pad. For each pad, the same number of ships should land each hour with none left over. Can you help fix the schedule so that an exact number of spaceships land at each pad with none left over? (Hint: Use the $\div R$ key on your calculator!)



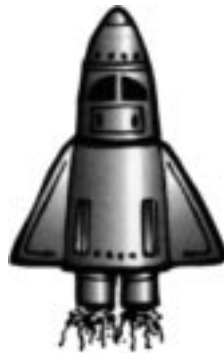
Lunar Pad

Old Schedule

153 ships land
in 6 hours

New Schedule

___ ships land
in 6 hours



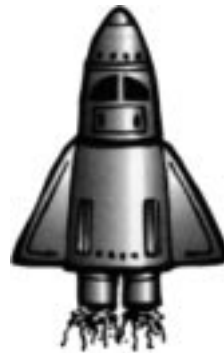
Venus Pad

Old Schedule

133 ships land
in 9 hours

New Schedule

___ ships land
in 9 hours



Pluto Pad

Old Schedule

138 ships land
in 8 hours

New Schedule

___ ships land
in 8 hours



Saturn Pad

Old Schedule

184 ships land
in 7 hours

New Schedule

___ ships land
in 7 hours

Thinking Cap



Another employee said that the numbers in the original schedule were correct, just mixed up. She said that the number of ships for each pad was correct, but the number of hours were with the wrong pad. Is this possible? Prove your answer.

Spaceship Port

Exploring Remainders

Topic: Dividing 3-Digit Numbers by 1-Digit Numbers with Remainders

Objective: To use the calculator to solve problems involving the meaning of remainders.

NCTM Standards: Problem Solving, Whole Number Computation, Estimation

Using the Activity

Students use the calculator in this activity as a tool to solve problems involving the meaning of remainders. Students must find the problem with the landing schedule and fix the schedule.

- They can use the $\div R$ key on the calculator to see that there are ships remaining after the number of hours are divided into the number of ships.
- Students can then fix the schedule by determining the next greater dividend for each pad so that there will not be a remainder.

Example On the Lunar Pad, $153 \div R 6 = 25 R 3$. Since 6 is the divisor and there is a remainder of 3, there need to be $6 - 3 = 3$ more ships scheduled to land on the Lunar Pad.

- The corrected schedule should show 156 ships landing on the Lunar Pad in 6 hours.

Assessment Students should be encouraged to check their corrected schedule using the $\div R$ key to be sure that there are no remainders.

Answers

LUNAR PAD: $153 \div R 6 = 25 R 3$, so there are 26 ships landing each hour, or $26 \times 6 = 156$ ships in 6 hours.

VENUS PAD: $133 \div R 9 = 14 R 7$, so there are 15 ships landing each hour, or $15 \times 9 = 135$ ships in 9 hours.

PLUTO PAD: $138 \div R 8 = 17 R 2$, so there are 18 ships landing each hour, or $18 \times 8 = 144$ ships in 8 hours.

SATURN PAD: $184 \div R 7 = 26 R 2$, so there are 27 ships landing each hour, or $27 \times 7 = 189$ ships in 7 hours.

Thinking Cap

As an extension, students fix the schedule in a different way. They can use the $\div R$ key on the calculator to determine the number of hours that should go with each pad. For example, the 153 ships scheduled to land on the Lunar Pad should land in either 9, 8, or 7 hours. Students will find that $153 \div R 9 = 17 R 0$, so the corrected schedule for this situation should show 153 ships landing in 9 hours on the Lunar Pad.

Answers: Yes

LUNAR PAD: Since $153 \div R 9 = 17 R 0$, 153 ships land in 9 hours.

VENUS PAD: Since $133 \div R 7 = 19 R 0$, 133 ships land in 7 hours.

PLUTO PAD: Since $138 \div R 6 = 23 R 0$, 138 ships land in 6 hours.

SATURN PAD: Since $184 \div R 8 = 23 R 0$, 184 ships land in 8 hours.