



Cherries Are Positive, Lemons Are Negative-Part 2 Activity Sheet



Names _____ and _____

MA.A.3.3.1- The student understands and explains the effects of addition, subtraction, multiplication, and division on whole numbers, fractions, including mixed numbers, and decimals, including the inverse relationships of positive and negative numbers.

Remember:

- 1 cherry head represents Positive 1 (+1)
- 1 lemon head represents Negative 1 (-1)
- 1 cherry head and 1 lemon head represent Zero (0)

Subtracting a Smaller Positive Integer from a Larger Positive Integer

1. Let's model $8 - 3$.
Place eight cherry heads on the paper plate. Now, remove three cherry heads from the paper plate.
 - a. What is left on your paper plate? _____
 - b. What integer does this represent? _____
2. Let's model $5 - 1$.
Place five cherry heads on the paper plate. Now, remove one cherry head from the paper plate.
 - a. What is left on your paper plate? _____
 - b. What integer does this represent? _____
3. Let's model $6 - 5$.
Place six cherry heads on the paper plate. Now, remove five cherry heads from the paper plate.
 - a. What is left on your paper plate? _____
 - b. What integer does this represent? _____
4. When subtracting a smaller amount of cherry heads from a larger amount of cherry heads, did you end up with any cherry heads? If so, when?

Did you end up with any lemon heads? If so, when?

5. Based on your findings, come up with a rule (or rules) for subtracting a smaller positive integer from a larger positive integer. (Hint: Pay close attention to the value of the numbers you obtained and whether the numbers were positive or negative.)

6. Use your rule to subtract the following:
- a. $32 - 15 =$ _____ b. $64 - 26 =$ _____
 c. $42 - 39 =$ _____ d. $55 - 44 =$ _____

Subtracting a Larger Positive Integer from a Smaller Positive Integer

7. Let's model $2 - 5$.
 Place 2 cherry heads on the paper plate. At this time, can you remove 5 cherry heads? _____

Hopefully, you answered no. ☺ You cannot remove 5 cherry heads; however, there is still a way to model $2 - 5$.

In order to remove 5 cherry heads from the plate, you must have at least 5 cherry heads on the plate. You cannot simply add 3 cherry heads because that would change the value of the problem, so recall that 1 cherry head and 1 lemon head represent 0. If you add 3 cherry heads and 3 lemon heads, then you would not change the value of the problem because you are simply adding 0. (See your teacher if you need further explanation.)

After you add 3 cherry heads and 3 lemon heads, you now have 5 cherry heads to remove. Please remove them.

- a. What is left on your paper plate? _____
 b. What integer does this represent? _____

8. Let's model $4 - 10$.
 Place 4 cherry heads on the paper plate. At this time, can you remove 10 cherry heads? _____

Well, just like the previous problem, you can add cherry head/lemon head pairs in order to have the cherry heads you need without changing the value of the problem. How many pairs do you need to add? _____ Please add them.

Now, remove 10 cherry heads.

- a. What is left on your paper plate? _____
 b. What integer does this represent? _____

9. Let's model $3 - 8$.
 Place 3 cherry heads on the paper plate. At this time, can you remove 8 cherry heads?

Well, just like the previous problems, you can add cherry head/lemon head pairs in order to have the cherry heads you need without changing the value of the problem. How many pairs do you need to add? _____ Please add them.

Now, remove 8 cherry heads.

- a. What is left on your paper plate? _____
- b. What integer does this represent? _____

10. When subtracting a larger amount of cherry heads from a smaller amount of cherry heads, did you end up with any cherry heads? If so, when?

Did you end up with any lemon heads? If so, when?

11. Based on your findings, come up with a rule (or rules) for subtracting a larger positive integer from a smaller positive integer. (Hint: Pay close attention to the value of the numbers you obtained and whether they were positive or negative.)

12. Use your rule to subtract the following:

- a. $12 - 25 =$ _____
- b. $20 - 26 =$ _____
- c. $31 - 59 =$ _____
- d. $44 - 55 =$ _____

Subtracting a Smaller Negative Integer from a Larger Negative Integer

13. Let's model $-5 - (-2)$.

Place 5 lemon heads on the paper plate. At this time, can you remove 2 lemon heads?

Hopefully, you answered yes! ☺ Now, remove them.

- a. What is left on your paper plate? _____
- b. What integer does this represent? _____

14. Let's model $-7 - (-3)$.

Place 7 lemon heads on the paper plate. Now, remove 3 lemon heads from the paper plate.

- a. What is left on your paper plate? _____
- b. What integer does this represent? _____

15. Let's model $-6 - (-2)$.

Place 6 lemon heads on the paper plate. Now, remove 2 lemon heads from the paper plate.

- a. What is left on your paper plate? _____
- b. What integer does this represent? _____

16. When subtracting a smaller amount of lemon heads from a larger amount of lemon heads, did you end up with any cherry heads? If so, when?

Did you end up with any lemon heads? If so, when?

17. Based on your findings, come up with a rule (or rules) for subtracting a smaller negative integer from a larger negative integer. (Hint: Pay close attention to the value of the numbers you obtained and whether they were positive or negative.)

18. Use your rule to subtract the following:

a. $-10 - (-3) =$ _____

b. $-16 - (-12) =$ _____

c. $-20 - (-1) =$ _____

d. $-31 - (-6) =$ _____

Subtracting a Larger Negative Integer from a Smaller Negative Integer

19. Let's model $-2 - (-4)$.

Place 2 lemon heads on the paper plate. At this time, can you remove 4 lemon heads?

Hopefully, you answered no. 😊 You cannot remove 4 lemon heads; however, there is still a way to model $-2 - (-4)$. You have to follow the same procedure as when you subtract a larger positive integer from a smaller positive integer.

You can add cherry head/lemon head pairs in order to have the lemon heads you need without changing the value of the problem. How many pairs do you need to add? _____ Please add them.

Now, remove 4 lemon heads.

a. What is left on your paper plate? _____

b. What integer does this represent? _____

20. Let's model $-3 - (-6)$.

Place 3 lemon heads on the paper plate. At this time, can you remove 6 lemon heads?

How many cherry head/lemon head pairs do you need to add? _____ Please add them.

Now, remove 6 lemon heads.

a. What is left on your paper plate? _____

b. What integer does this represent? _____

21. Let's model $-1 - (-4)$.

Place 1 lemon head on the paper plate. At this time, can you remove 4 lemon heads?

How many cherry head/lemon head pairs do you need to add? _____ Please add them.

Now, remove 4 lemon heads.

- What is left on your paper plate? _____
- What integer does this represent? _____

22. When subtracting a larger amount of lemon heads from a smaller amount of lemon heads, did you end up with any cherry heads? If so, when?

Did you end up with any lemon heads? If so, when?

23. Based on your findings, come up with a rule (or rules) for subtracting a larger negative integer from a smaller negative integer. (Hint: Pay close attention to the value of the numbers you obtained and whether the numbers were positive or negative.)

24. Use your rule to subtract the following:

- | | |
|-------------------------|--------------------------|
| a. $-3 - (-10) =$ _____ | b. $-12 - (-16) =$ _____ |
| c. $-1 - (-20) =$ _____ | d. $-6 - (-31) =$ _____ |

Subtracting a Negative Integer from a Positive Integer

25. Let's model $2 - (-5)$.

Place 2 cherry heads on the paper plate. At this time, can you remove 5 lemon heads?

How many cherry head/lemon head pairs do you need to add? _____ Please add them.

Now, remove 5 lemon heads.

- What is left on your paper plate? _____
- What integer does this represent? _____

26. Let's model $6 - (-3)$.

Place 6 cherry heads on the paper plate. At this time, can you remove 3 lemon heads?

How many cherry head/lemon head pairs do you need to add? _____ Please add them.

Now, remove 3 lemon heads.

- a. What is left on your paper plate? _____
- b. What integer does this represent? _____

27. Let's model $4 - (-1)$.

Place 4 cherry heads on the paper plate. At this time, can you remove 1 lemon head?

How many cherry head/lemon head pairs do you need to add? _____ Please add them.

Now, remove 1 lemon head.

- a. What is left on your paper plate? _____
- b. What integer does this represent? _____

28. When subtracting lemon heads from cherry heads, did you end up with any cherry heads? If so, when?

Did you end up with any lemon heads? If so, when?

29. Based on your findings, come up with a rule (or rules) for subtracting a negative integer from a positive integer. (Hint: Pay close attention to the value of the numbers you obtained and whether the numbers were positive or negative.)

30. Use your rule to subtract the following:

- a. $13 - (-15) =$ _____
- b. $22 - (-18) =$ _____
- c. $1 - (-10) =$ _____
- d. $26 - (-21) =$ _____

Subtracting a Positive Integer from a Negative Integer

31. Let's model $-8 - 2$.

Place 8 lemon heads on the paper plate. At this time, can you remove 2 cherry heads?

How many cherry head/lemon head pairs do you need to add? _____ Please add them.

Now, remove 2 cherry heads.

- a. What is left on your paper plate? _____
- b. What integer does this represent? _____

32. Let's model $-3 - 4$.

Place 3 lemon heads on the paper plate. At this time, can you remove 4 cherry heads?

How many cherry head/lemon head pairs do you need to add? _____ Please add them.

Now, remove 4 cherry heads.

a. What is left on your paper plate? _____

b. What integer does this represent? _____

33. Let's model $-6 - 2$.

Place 6 lemon heads on the paper plate. At this time, can you remove 2 cherry heads?

How many cherry head/lemon head pairs do you need to add? _____ Please add them.

Now, remove 2 cherry heads.

a. What is left on your paper plate? _____

b. What integer does this represent? _____

34. When subtracting cherry heads from lemon heads, did you end up with any cherry heads? If so, when?

Did you end up with any lemon heads? If so, when?

35. Based on your findings, come up with a rule (or rules) for subtracting a positive integer from a negative integer. (Hint: Pay close attention to the value of the numbers you obtained and whether the numbers were positive or negative.)

36. Use your rule to subtract the following:

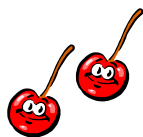
a. $-23 - 14 =$ _____

b. $-31 - 18 =$ _____

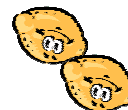
c. $-18 - 10 =$ _____

d. $-26 - 29 =$ _____

37. Now, give your partner and yourself a hand! You are finally done! 😊



Rubric for Cherries Are Positive, Lemons Are Negative-Part 2



Commendable	Acceptable	See Teacher
Works cooperatively with partner without problems	Works with partner with few problems	Refuses to cooperate with partner
Makes and is able to correctly use a clear rule for subtracting a smaller positive integer from a larger one	Attempts to make and correctly use a clear rule for subtracting a smaller positive integer from a larger one	Does not make and/or correctly use a clear rule for subtracting a smaller positive integer from a larger one
Makes and is able to correctly use a clear rule for subtracting a larger positive integer from a smaller one	Attempts to make and correctly use a clear rule for subtracting a larger positive integer from a smaller one	Does not make and/or correctly use a clear rule for subtracting a larger positive integer from a smaller one
Makes and is able to correctly use a clear rule for subtracting a smaller negative integer from a larger one	Attempts to make and correctly use a clear rule for subtracting a smaller negative integer from a larger one	Does not make and/or correctly use a clear rule for subtracting a smaller negative integer from a larger one
Makes and is able to correctly use a clear rule for subtracting a larger negative integer from a smaller one	Attempts to make and correctly use a clear rule for subtracting a larger negative integer from a smaller one	Does not make and/or correctly use a clear rule for subtracting a larger negative integer from a smaller one
Makes and is able to correctly use a clear rule for subtracting a negative integer from a positive integer	Attempts to make and correctly use a clear rule for subtracting a negative integer from a positive integer	Does not make and/or correctly use a clear rule for subtracting a negative integer from a positive integer
Makes and is able to correctly use a clear rule for subtracting a positive integer from a negative integer	Attempts to make and correctly use a clear rule for subtracting a positive integer from a negative integer	Does not make and/or correctly use a clear rule for subtracting a positive integer from a negative integer