

6th Grade

April 27-May 1 Distribution

Hello again, 6th graders! Last week we finished up your statistics standards when we worked on box-and-whisker plots. This week we will continue work we started earlier in the year involving variables. Our target this week is:

--Solve one-step variable equations involving whole numbers.

The worksheets will be helpful practice to prepare you for the assessment at the end of the packet. As usual, you can also practice on ixl, Prodigy, or khanacademy.org. If you do ixl sections Z.1-Z.3, and the 2 new sections between Z.5 and Z.6 they would provide some great practice for you.

Here's a checklist of things to do for the week in math:

- 1. Do one or two worksheets per day.
- 2. If you have internet service, watch my instructional video on the district website.
- Join us at our class Zoom meeting on Tuesday at 2:00 p.m. prepared to ask questions.
- When you feel like you've met the week's targets, take the assessment at the end of the packet.
- Send me a copy/picture of JUST the assessment by May 8th.

Have a great week!

Sincerely,

Mrs. Johnston

Solving One-Step Equations

Objectives:

...to solve one-step equations involving whole numbers

Assessment Anchor:



7.D.2.1 – Select and/or use appropriate strategies to solve or represent number sentences.

Vocabulary alert!!

EQUATION – a mathematical sentence that uses an equals (=) sign to indicate that the side to the left of the equals sign has the same value as the side to the right of the equals sign

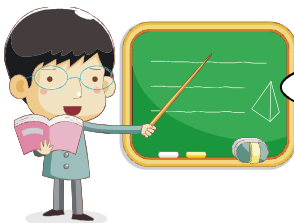
INVERSE OPERATIONS – operations that undo each other

NOTES

***EQUATIONS ARE LIKE BALANCED SEE-SAWS...AND MUST REMAIN BALANCED!!

To solve a one-step equation:

1. Locate the variable in the equation
2. Use the inverse (opposite) operation on both sides of the equation
3. Show your answer



“For every equation from this day forward, I agree to write down what I’m doing to both sides!”

Solving One-Step Equations

EXAMPLES

- 1) $x - 7 = 15$ original problem
- $\begin{array}{r} \textcircled{x} - 7 = 15 \\ + 7 \quad + 7 \\ \hline \end{array}$ locate the variable term
.....add 7 to both sides
- $\textcircled{x = 22}$ show final answer!
- 2) $x + 10 = 57$ original problem
- $\begin{array}{r} \textcircled{x} + 10 = 57 \\ - 10 \quad - 10 \\ \hline \end{array}$ locate the variable term
.....subtract 10 from both sides
- $\textcircled{x = 47}$ show final answer!
- 3) $8y = 72$ original problem
- $\begin{array}{r} \textcircled{8y} = 72 \\ 8 \quad 8 \\ \hline \end{array}$ locate the variable term
.....divide by 8 on both sides
- $\textcircled{y = 9}$ show final answer!
- 4) $13 = \frac{k}{4}$ original problem
- $4 \times 13 = \frac{\textcircled{k}}{4} \times 4$ locate the variable term, and then
multiply both sides by 4
- $\textcircled{52 = k}$ show final answer!

Solving One-Step Equations

5) $x + 13 = 19$

9) $46 = y - 20$

6) $x - 10 = 22$

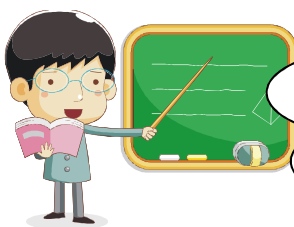
10) $41 = k + 18$

7) $\frac{w}{7} = 14$

11) $3k = 126$

8) $135 = 5m$

12) $22 = \frac{f}{6}$



“Knowing to use inverse operations, and to write it down on both sides...that’s our main goal here. It’s just as important as calculating the right answer... maybe even MORE important.”

Solving One-Step EQUATIONS – Addition/Subtraction

- An equation is a math sentence that **DOES** contain an _____ .
- The goal of solving an equation is to **find the value of the variable**.
 - We do this by **isolating** the variable on one side of the equation using **Inverse Operations!**
 - **Inverse operations** “undo” each other!

Inverse of addition? _____

Inverse of subtraction? _____

Inverse of multiplication? _____

Inverse of division? _____

Examples:

John has x apples. If he adds 5 apples to his pile, he will have 8 apples.
What is the value of x ?

Write an equation:

$$\begin{array}{r} x + 5 = 8 \\ - 5 = -5 \\ \hline x = 3 \end{array}$$

Answer: John had 3 apples before he added to his pile.

Check: $3 + 5 = 8$

Maddie has x dollars. After spending \$90 on a purse, she will have \$45. What is the value of x ?

Write an equation:

$$\begin{array}{r} x - 90 = 45 \\ + 90 = +90 \\ \hline x = 135 \end{array}$$

Answer: Maddie had \$135 before she bought the purse.

Check: $135 - 90 = 45$

Let's Practice!

1. $x + 2 = 10$

	+		=	
--	---	--	---	--

$$x + 0 = \boxed{}$$

Check:

2. $y - 8 = 15$

	-		=	
--	---	--	---	--

$$y - 0 = \boxed{}$$

Check:

3. $a + 9 = 2$

	+		=	
--	---	--	---	--

$$a + 0 = \boxed{}$$

Check:

Math 6 Practice (8.1)

Solve

1) $x + 7 = 18$

2) $a - 15 = 22$

3) $83 = y - 17$

4) $c - 3 = 6$

5) $x + 8 = 18$

6) $y - 5 = 4$

7) $6 + z = 10$

8) $p - 5 = 15$

9) $4 + m = 12$

10) $g + 44 = 50$

11) $x - 9 = 2$

12) $a + 10 = 17$

13) $y - 4 = 19$

14) $b - 17 = 12$

15) $3 = d + 2$

16) $i + 13 = 27$

17) $y - 4 = 6$

18) $x + 5 = 8$

19) $x - 4 = 9$

20) $24 = n + 13$

21) $d - 9 = 11$

Solving One-Step Equations: Addition and Subtraction**You must show your work to get credit! Check your answer.**

1) $y + 6 = 20$

2) $x - 10 = 12$

3) $12 + z = 15$

4) $2 + n = 16$

5) $a + 4 = 14$

6) $m - 5 = 10$

7) $4 + b = 30$

8) $10 + c = 25$

9) $x - 60 = 20$

10) $g - 16 = 4$

11) $x - 15 = 20$

12) $w + 14 = 18$

13) $r - 18 = 27$

14) $13 + k = 25$

15) $f - 16 = 34$

4-2**Practice: Skills*****Solving Addition and Subtraction Equations*****Solve each equation. Check your solution.**

1. $x + 2 = 8$

2. $y + 7 = 9$

3. $a + 5 = 12$

4. $16 = n + 6$

5. $q + 10 = 22$

6. $m + 9 = 17$

7. $b - 4 = 9$

8. $8 = c - 4$

9. $11 = t - 7$

10. $d - 10 = 8$

11. $x - 11 = 9$

12. $2 = z - 14$

13. $72 = 24 + w$

14. $86 + y = 99$

15. $6 + y = -8$

16. $-5 = m + 11$

17. $n + 3.5 = 6.7$

18. $x + 1.6 = 0.8$

19. $98 = t - 18$

20. $12 = g - 56$

21. $x - 18 = -2$

22. $p - 11 = -5$

23. $a - 1.5 = 4.2$

24. $7.4 = n - 2.6$

Name : _____

Score : _____

One-Step Equations: Integers

Add/Sub Level 1: S1

Solve each equation.

1) $x + 9 = 12$

2) $s - 1 = 10$

3) $3 = z - 11$

4) $5 + y = 7$

5) $8 = 2 + q$

6) $6 = n - 4$

7) $r - 2 = 5$

8) $6 = m + 6$

9) $p + 7 = 8$

10) $4 + a = 13$

Name : _____

Score : _____

Answer Key

One-Step Equations: Integers

Add/Sub Level 1: S1

Solve each equation.

1) $x + 9 = 12$

$x = 3$

2) $s - 1 = 10$

$s = 11$

3) $3 = z - 11$

$z = 14$

4) $5 + y = 7$

$y = 2$

5) $8 = 2 + q$

$q = 6$

6) $6 = n - 4$

$n = 10$

7) $r - 2 = 5$

$r = 7$

8) $6 = m + 6$

$m = 0$

9) $p + 7 = 8$

$p = 1$

10) $4 + a = 13$

$a = 9$

Name : _____

Score : _____

One-Step Equations: Integers

Mul/Div Level 1: S1

Solve each equation.

1) $3x = 36$

2) $\frac{y}{9} = 3$

3) $5p = 25$

4) $14 = \frac{a}{2}$

5) $\frac{r}{8} = 4$

6) $24 = 6c$

7) $\frac{q}{11} = 1$

8) $8u = 40$

9) $10 = \frac{w}{3}$

10) $7z = 7$

Name : _____

Score : _____

Answer Key**One-Step Equations: Integers**

Mul/Div Level 1: S1

Solve each equation.

1) $3x = 36$

$x = 12$

2) $\frac{y}{9} = 3$

$y = 27$

3) $5p = 25$

$p = 5$

4) $14 = \frac{a}{2}$

$a = 28$

5) $\frac{r}{8} = 4$

$r = 32$

6) $24 = 6c$

$c = 4$

7) $\frac{q}{11} = 1$

$q = 11$

8) $8u = 40$

$u = 5$

9) $10 = \frac{w}{3}$

$w = 30$

10) $7z = 7$

$z = 1$

Let's Recycle

Andy collects plastic bottles, soda cans and paper bags for recycling. The recycling machine will give change back (in cents). The rates appear below.



$$p + 4 = \text{cents}$$



$$(s + 10)2 = \text{cents}$$



$$3b = \text{cents}$$

The letter p represents the number of plastic bottles he puts in.

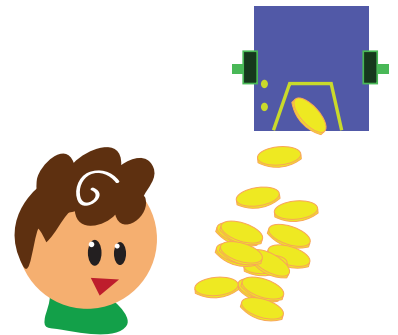
The letter s represents the number of soda cans he puts in.

The letter b represents the number of paper bags he puts in.

Find the total amount of change Andy will get if he puts these items in the machine.
See the example.

On Monday, Andy put 10 plastic bottles, 4 soda cans, and 5 paper bags into the machine.

- Change from the plastic bottle = $p + 4$, $p = 10$
Change from the plastic bottle = $10 + 4 = 14$ cents
- Change from the soda cans = $(s + 10)2$, $s = 4$
Change from the soda cans = $(4 + 10)2 = (14)2 = 28$ cents
- Change from the paper bags = $3b$, $b = 5$
Change from the paper bags = $3(5) = 15$ cents



Andy gets $14 + 28 + 15 = 57$ cents (\$0.57) from the recycling machine.

On Wednesday, Andy put in 8 plastic bottles, 12 soda cans, and 7 paper bags into the machine.

On Friday, Andy put in 25 plastic bottles, 18 soda cans, and 9 paper bags into the machine.

How much money would Andy get in total from Wednesday and Friday?

Name: _____ Date: _____

Linear Equations Worksheet

Solve the equations.

1 a. $11 = 2 + t$

1 b. $11 = p + 3$

2 a. $x - 2 = 2$

2 b. $3 = 9 - k$

3 a. $\frac{v}{6} = 2$

3 b. $x - 9 = 1$

4 a. $c + 7 = 8$

4 b. $10 = 9 + v$

5 a. $y + 9 = 11$

5 b. $n + 5 = 9$

6 a. $z + 3 = 4$

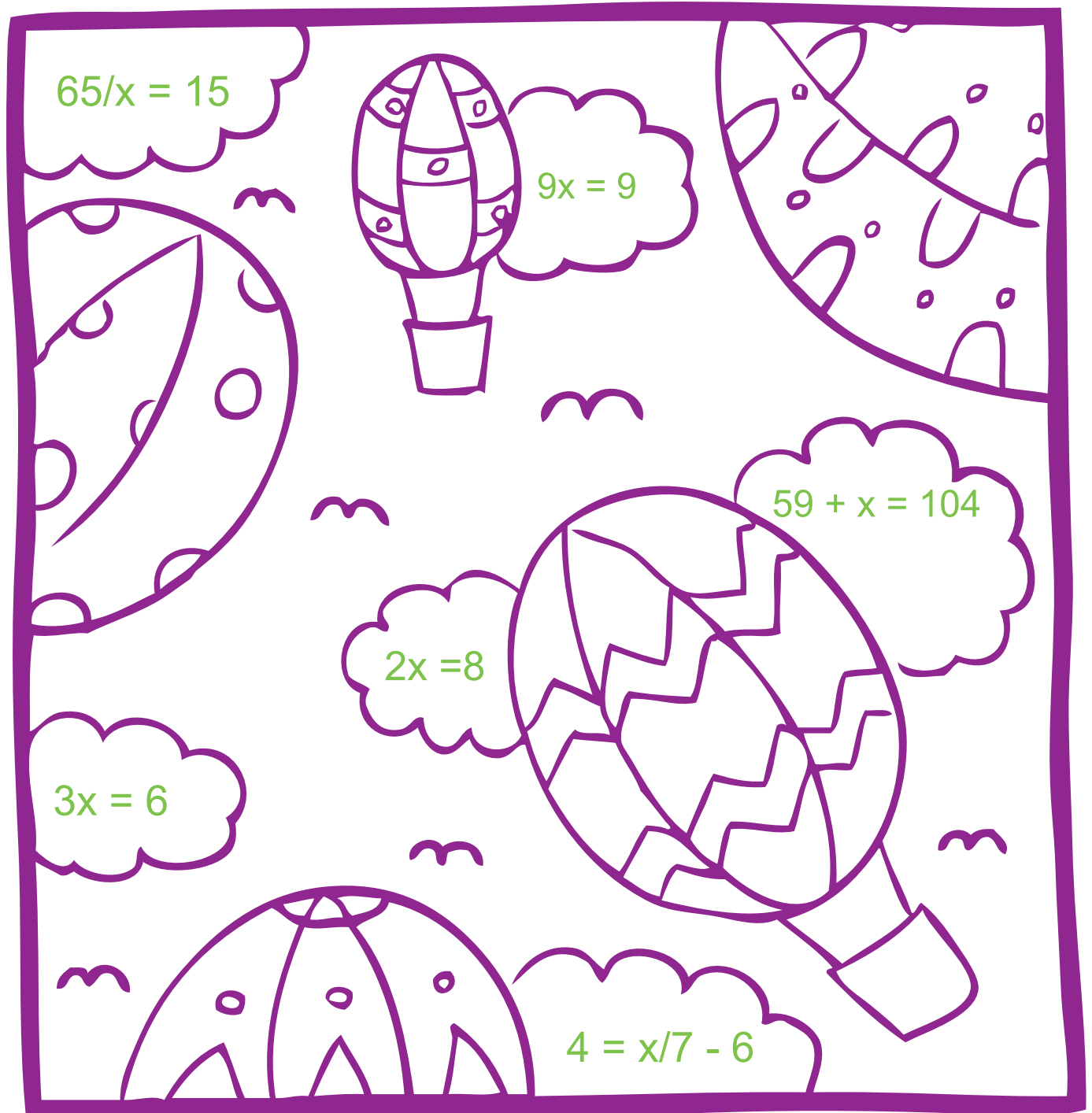
6 b. $\frac{y}{3} = 2$

Name: _____ Date: _____

Answer Key

1 a. $t = 9$	1 b. $p = 8$
2 a. $x = 4$	2 b. $k = 6$
3 a. $v = 12$	3 b. $x = 10$
4 a. $c = 1$	4 b. $v = 1$
5 a. $y = 2$	5 b. $n = 4$
6 a. $z = 1$	6 b. $y = 6$

Air Balloon Math



Note: More worksheets at www.education.com/worksheets

Instructions:

Complete each math problem and color the page!

6th Grade Assessment
Packet distributed April 27-May 1
Assessment due May 8

Name: _____

Please solve the following equations. Show your work so I can see your thinking.

$$Y + 87 = 119$$

$$M - 34 = 312$$

$$Y = \underline{\hspace{2cm}}$$

$$M = \underline{\hspace{2cm}}$$

$$B/3 = 324$$

$$6h = 84$$

$$B = \underline{\hspace{2cm}}$$

$$h = \underline{\hspace{2cm}}$$

I'm throwing this in just because I'm curious to see if anyone can make this jump. The 6th grade standard is to solve a 1-step variable. This is a 2-step equation. Don't stress out over it, but just see where this takes you.

$$3m + 13 = 52$$

$$M = \underline{\hspace{2cm}}$$