



Math Virtual Learning

HS/Essential Math II

April 29, 2020

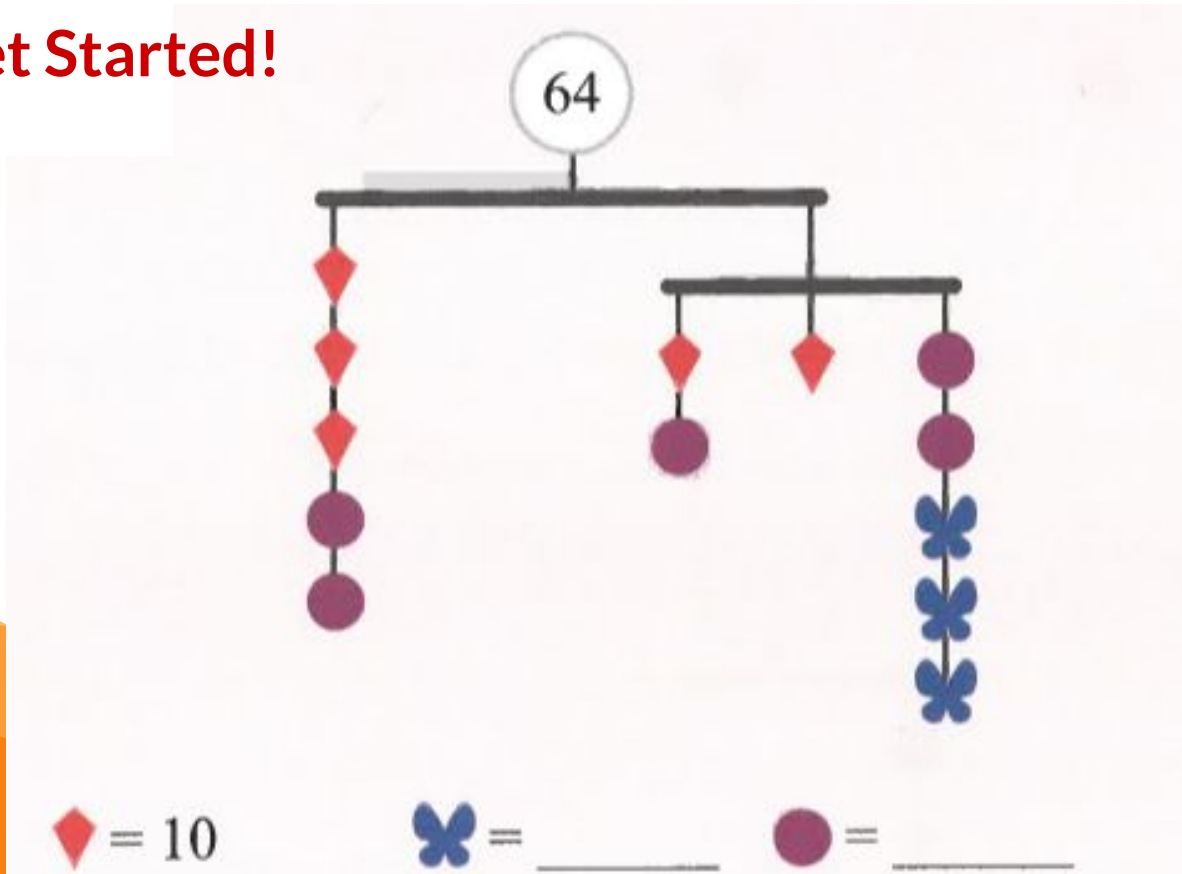


High School/Essentials of Algebra Course 2
Lesson: April 29, 2020(U5L8 part 2)
Objective/Learning Target:

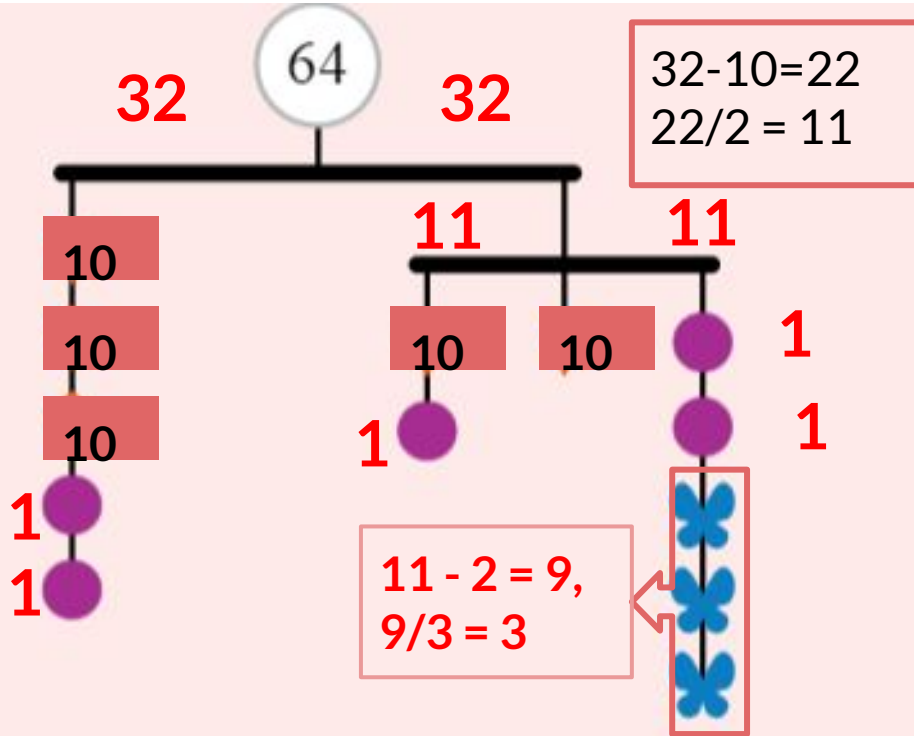
Solve equations using properties of operations & the logic of preserving equality - solving systems.


U5L8 # 14-19, 28-31, D-F

Let's Get Started!



Answer :



 = 10

 = 3

 = 1

Problems 14 and 15 each present a system of equations. Figure out which Mystery Number puzzle, A or B, matches which system, and solve the systems of equations. In each problem, each variable has a different value.

14 $xy = z$

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

$2y = z$

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

$3x = z$

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

15 $ab = b$

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


$b^2 = c$


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


$2b = c$

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


(A)









(B)













Problems 14 and 15 each present a system of equations. Figure out which Mystery Number puzzle, A or B, matches which system, and solve the systems of equations. In each problem, each variable has a different value.





⑭ $xy = z$ $x = \underline{2}$
 $2y = z$ $y = \underline{3}$
 $3x = z$ (matches A) $z = \underline{6}$

⑮ $ab = b$ $a = \underline{1}$
 $b^2 = c$ $b = \underline{2}$
 $2b = c$ (matches B) $c = \underline{4}$




Ⓐ




 •  = 




 +  = 

 +  +  = 

Ⓑ

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$2 * 3 = 6$
 $3 + 3 = 6$
 $2 + 2 + 2 = 6$

$1 * 2 = 2$
 $2 * 2 = 4$
 $2 + 2 = 4$

Who Am I puzzles are also systems of equations and inequalities! You could write the two equations that were expressed in words, using algebra.

29

Who Am I?

- The sum of my digits is 9.
- $t < u$
- The product of my digits is 20.

t	u
<input type="text"/>	<input type="text"/>

29

Who Am I?

- The sum of my digits is 9.
- $t < u$
- The product of my digits is 20.

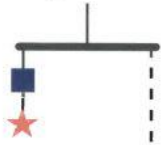
<i>t</i>	<i>u</i>
4	5

- Tens + units = 9
 - 0 + 9 or 1 + 8 or 2 + 7 or 3 + 6 or 4 + 5
- Tens is less than the units
 - 09 not standard form so not an option, so leaves 18 or 27 or 36 or 45
- Tens times units = 20
 - Only 4 times 5 = 20, so number is 45

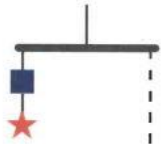
Additional Practice 1

D Use the mobile in problem C to do these problems.

- i Draw the correct number of *triangles* to make this balance.



- ii Draw the correct number of *pentagons* to make this balance.




- iii How many  balance ?

- iv According to the mobile, what is the weight of $2\triangle + \text{pentagon}$?


- v How many  will balance $2\triangle + \text{pentagon}$?

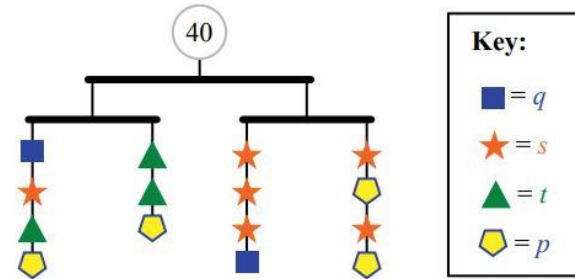
- vi  = ___  = ___

- vii According to the mobile, what is the weight of $2\star + 2\text{pentagon}$?

- viii What does  weigh?

- ix According to the mobile, what is the weight of $3\star + \text{square}$?

- x What does  weigh?



Key:

 = q

 = s

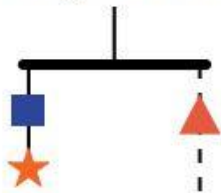
 = t

 = p

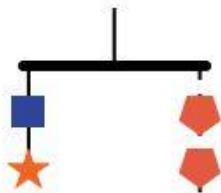
Practice 1 Key

D Use the mobile in problem C to do these problems.

- i** Draw the correct number of *triangles* to make this balance.



- ii** Draw the correct number of *pentagons* to make this balance.



- iii** How many  balance ?

2

- iv** According to the mobile, what is the weight of

$2 \triangle + \text{pentagon}?$ 10

- v** How many  will balance

$2 \triangle + \text{pentagon}?$ 5

vi $\text{pentagon} = \underline{2}$ $\triangle = \underline{4}$

- vii** According to the mobile, what is the weight of

$2 \star + 2 \text{pentagon}?$ 10

- viii** What does  weigh? 3

- ix** According to the mobile, what is the weight of

$3 \star + \text{square}?$ 10

- x** What does  weigh? 1

Additional Practice 2

Find the matching mobile below for each of the systems of equations. Then solve each system of equations.

E $2x + d = x + 4d$

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

$x + 4d = 7$

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

$x + p + d = 14$

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

F $3k = 9$

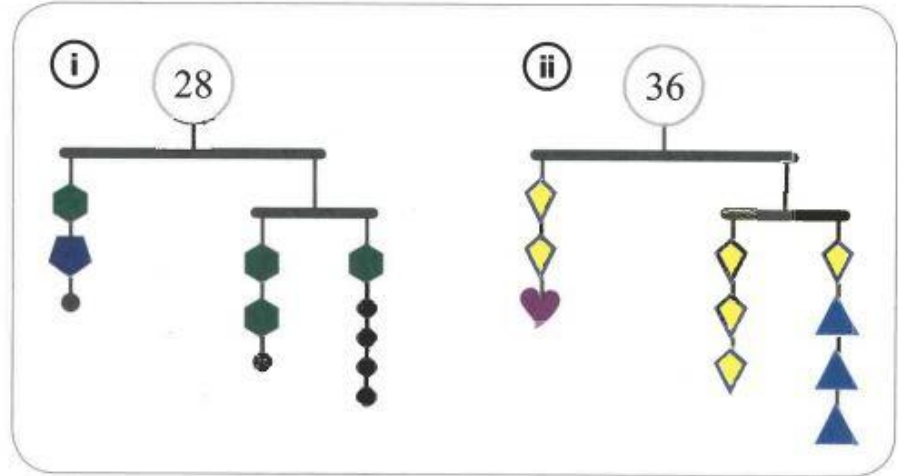
$k = \underline{\hspace{2cm}}$

$3k = k + 3t$

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

$2k + h = 18$

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



Additional Practice 2 Key

$$\textcircled{\text{E}} \quad 2x + d = x + 4d$$

$$x + 4d = 7$$

$$x + p + d = 14$$

(matches i)

$$x = \underline{3}$$

$$p = \underline{10}$$

$$d = \underline{1}$$

4 times something (**d**) plus something (**x**) = 7. Lets try 1 for d $x+4=7$ so what plus 4 = 7? 3 $4+3=7$

Now we know that **d = 1** and **x = 3**. Plug those numbers into another equation to find p

$3+p+1 = 14$. Combine like terms so we have

$$\underset{-4}{4} + p = \underset{-4}{14}$$

$$P = 10$$

Additional Practice 2 Key

$$\textcircled{\mathbf{F}} \quad \frac{3k = 9}{3} \quad \mathbf{k=3}$$

$$3k = k + 3t \quad \begin{array}{l} -3 \quad -3 \\ 9 = 3 + 3t = \frac{6 = 3t}{3} \\ \mathbf{t=2} \end{array}$$

$$2k + h = 18$$

$$2(3) + h = 18 \quad = \quad \begin{array}{l} -6 \quad -6 \\ 6 + h = 18 \\ \mathbf{h=12} \end{array}$$

$$k = \underline{3}$$

$$t = \underline{2}$$

$$h = \underline{12}$$

Additional Practice 2 Key

Find the matching mobile below for each of the systems of equations. Then solve each system of equations.

Ⓔ $2x + d = x + 4d$

$x + 4d = 7$

$x + p + d = 14$

(matches i)

Ⓕ $3k = 9$

$3k = k + 3t$

$2k + h = 18$

(matches ii)

$x = \underline{3}$

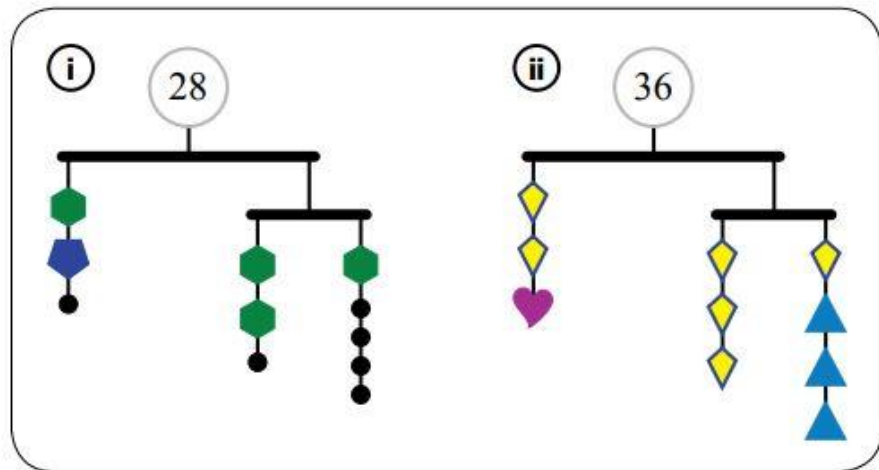
$p = \underline{10}$

$d = \underline{1}$

$k = \underline{3}$

$t = \underline{2}$

$h = \underline{12}$



Additional Practice 3

Complete these tables using Jay's method for recording each step of the trick along the way.

⑥

Instructions	Record
	p
	$p + 4$
Divide 20 by the result.	$\frac{20}{p+4}$
	$\frac{20}{p+4} - 1$
	$6\left(\frac{20}{p+4} - 1\right)$

⑦

Instructions	Record
Think of a number.	h
Add 5.	
Multiply the result by 2.	$2(\quad)$
Add 13.	
Divide the result by 9.	$3\left(\frac{40}{k} - 21\right) + 81$

Additional Practice 3 Key

Complete these tables using Jay's method for recording each step of the trick along the way.

⑥

Instructions

Record

Think of a number.	p
Add 4.	$p + 4$
Divide 20 by the result.	$\frac{20}{p+4}$
Subtract 1.	$\frac{20}{p+4} - 1$
Multiply by 6.	$6\left(\frac{20}{p+4} - 1\right)$

⑦

Instructions

Record

Think of a number.	h
Add 5.	$h + 5$
Multiply the result by 2.	$2(h + 5)$
Add 13.	$2(h + 5) + 13$
Divide the result by 9.	$3\left(\frac{40}{k} - 21\right) + 81$

Mystery Puzzles can be practiced virtually by clicking on the link below

http://www.kenkenpuzzle.com/play_now

Special thanks to all the people who made and released these awesome resources for free:

- Presentation template by [SlidesCarnival](#)
- Photographs by [Unsplash](#)



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