Warm Up Grade 8

for each
for every
per
/
times
product

Hint : look for the key words that go with the variable

For the problem, state let **the variable, write and solve the equation, verify and give a statement.**

Sally has a cell phone that has a monthly charge of $20 plus an additional $0.05 for each call or text that is made. If Sally's bill last month was $80.20, how many call/texts did she make?

Let x represent how many calls/text she made.

$$0.05x + 20 = 80.20$$

$$0.05x + 20 - 20 = 80.20 - 20$$

$$0.05x = 60.20$$

$$\frac{0.05x}{0.05} = \frac{60.20}{0.05}$$

$$x = 1204$$

Sally made 1204 text/calls.

Verify

LHS

$0.05x + 20$

Sub in answer

$x = 1204$

$0.05(1204) + 20$

$60.20 + 20$

80.20

RHS

80.20

Same ✓

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10. c = cost of ticket

$ct6$ = cost for each person

$8(c+6) = 264$

$8c + 48 = 264$

$8c + 48 - 48 = 264 - 48$

$8c = 216$

$\frac{8c}{8} = \frac{216}{8}$

$c = 27$

Cost of red ticket was 27

LS: $8(c+6)$, $8(27+6)$, 8×33, 264

RS: 264

11. n = the integer

$-5(n+9) = 15$

$-5n + (-45) = 15$

$-5n - 45 + 45 = 15 + 45$

$-5n = 60$

$\frac{-5n}{-5} = \frac{60}{-5}$

$n = -12$

The integer is -12

LS: $-5(n+9)$, $-5(12+9)$, -5×3, 15

RS: 15

12. n = the integer

$$-4(n-7) = 36 \qquad -4n-(-28)$$
$$-4n+28 = 36$$
$$-4n+28-28 = 36-28$$
$$-4n = 8$$
$$\frac{-4n}{-4} = \frac{8}{-4}$$
$$n = -2$$

The integer was -2.

L S
$-4(n-7)$
$-4(-2-7)$
-4×-9
36

R S
$3\ 6$

13 Kirsten's mistake was that she divided the left side by -8, and the right side by 8.

$$-8x = -16$$
$$\frac{-8x}{-8} = \frac{-16}{-8}$$
$$x = 2$$

14 a) $-10 = 5(t-2)$

$-10 = 5t - 10$

$-10+10 = 5t - 10 + 10$

$0 = 5t$

$\frac{0}{5} = \frac{5t}{5}$

$0 = t$

-10 LS

RS
$5(t-2)$
$5(0-2)$
5×-2
-10

b) $7 = 2(p-3)$

$7 = 2p - 6$

$7+6 = 2p - 6 + 6$

$13 = 2p$

$\frac{13}{2} = \frac{2p}{2}$

$6.5 = p$

LS
7

RS
$2(p-3)$
$2(6.5-3)$
2×3.5
7

c) $4(r+5) = 23$

$4r + 20 = 23$

$4r + 20 - 20 = 23 - 20$

$4r = 3$

$\frac{4r}{4} = \frac{3}{4}$

$r = \frac{3}{4}$

LS
$4(r+5)$
$4(0.75+5)$
4×5.75
23

RS
23

d) $-3(s+6) = 18$

$-3s - 18 = 18$

$-3s - 18 + 18 = 18 + 18$

$-3s = 36$

$\frac{-3s}{-3} = \frac{36}{-3}$

$s = -12$

LS
$-3(s+6)$
$-3(-12+6)$
-3×-6
18

RS
18

Sheet Ex Prac 5

$125(a+2) = -5$

$5a + 10 = -5$

$5a + 10 - 10 = -5 - 10$

$5a = -15$

$\frac{5a}{5} = \frac{-15}{5}$

$a = -3$

verify

LS

$5(a+2)$

$5(-3+2)$

5×-1

-5

RS

-5

b) $4(p-6) = -4$

$4p - 24 = -4$

$4p - 24 + 24 = -4 + 24$

$4p = 20$

$\frac{4p}{4} = \frac{20}{4}$

$p = 5$

LS

$4(p-6)$

$4(5-6)$

4×-1

-4

RS

-4

c) $10(y+3) = 10$

$10y + 30 = 10$

$10y + 30 - 30 = 10 - 30$

$10y = -20$

$\frac{10y}{10} = \frac{-20}{10}$

$y = -2$

LS

$10(y+3)$

$10(-2+3)$

10×1

10

RS

10

d) $7(r-6) = 7$

$7r - 42 = 7$

$7r - 42 + 42 = 7 + 42$

$7r = 49$

$\frac{7r}{7} = \frac{49}{7}$

$r = 7$

LS

$7(r-6)$

$7(7-6)$

7×1

7

RS

7

a) $-7(b+6)=-84$

$-7b-42=-84$

$-7b-42+42=-84+42$

$-7b=-42$

$\frac{-7b}{-7}=\frac{-42}{-7}$

$b=+6$

LS

$-7(b+6)$

$-7(6+6)$

-7×12

-84

RS

-84

b) $-5(q-11)=70$

$-5q+55=70$

$-5q+55-55=70-55$

$-5q=15$

$\frac{-5q}{-5}=\frac{15}{-5}$

$q=-3$

LS

$-5(q-11)$

$-5(-3-11)$

-5×-14

70

RS

70

c) $-9(d-3)=-45$

$-9d+27=-45$

$-9d+27-27=-45-27$

$-9d=-72$

$\frac{-9d}{-9}=\frac{-72}{-9}$

$d=+8$

LS

$-9(d-3)$

$-9(8-3)$

-9×5

-45

RS

-45

d) $-6(f-5)=36$

$-6f+30=36$

$-6f+30-30=36-30$

$-6f=6$

$\frac{-6f}{-6}=\frac{6}{-6}$

$f=-1$

3 p = price of voucher

$5(8+p)=55$

$40+5p=55$

$40+5p-40=55-40$

$5p=15$

$\frac{5p}{5}=\frac{15}{5}$

$p=3$

The ice cream voucher was $3

LS
$5(8+p)$
$5(8+3)$
5×11
55

RS
55

4.

Per = 54 | 12

m

m = length of plot

$m+12+m+12=54$

$2m+24=54$

$2m+24-24=54-24$

$2m=30$

$\frac{2m}{2}=\frac{30}{2}$

$m=15$

The length is 15m.

$2(m+12)=54$

LS
$m+12+m+12$
$15+12+15+12$
54

RS
54

5. n = the number

$-4(n+9) = -16$

$-4n + -36 = -16$

$-4n + \cdot 36 - (36) = -16 - (-36)$

$-4n = 20$

$\frac{-4n}{-4} = \frac{20}{-4}$

$n = -5$

The Integer was -5

$-4n - 36 = -16$

$-4n - 36 + 36 = -16 + 36$

$-4n = 20$

LS

$-4(n+9)$

$-4(-5+9)$

-4×4

-16

RS

-16

Class/Homework

Test _____

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#1, #2,#3,#4,#7,#9,#10

model only 1c

Test outline

5 MC

6 Short Response

#1 Draw tiles and solve an equation

#2 Use Algebra tiles or box method to prove distributive property

#3For each problem, state **the variable, write and solve the equation and give a statement.** (Like warm up)

#4 Solve Ex) $2(x-3)=16$

$2x \quad -6 \quad =16$

#5 For each of the following tell whether the pair of expressions is equivalent or not.

#6 (Is it correct if yes then verify if no then redo)

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LESSON

6.1

1. Use a model to solve each equation. Verify the solution.

a) $4x = -36$ **b)** $-7x = 63$

c) $4x + 7 = 19$ **d)** $-3x + 5 = 17$

2. Alice has some granola bars in her backpack. If she triples the number of granola bars then adds 4, she will get 13. How many granola bars does Alice have?

a) Choose a variable. Write an equation for this situation.

b) Use a model to solve the equation.

c) Verify the solution. Show how you did this.

6.2

3. Solve each equation. Verify the solution.

a) $4x + 9 = -27$ **b)** $-5x + 8 = 23$

c) $3x - 4 = -3$ **d)** $10 = 6x + 5$

4. The school's sports teams held a banquet. The teams were charged $125 for the rental of the hall, plus $12 for each meal served. The total bill was $545. How many people attended the banquet?

a) Write an equation you could use to solve the problem.

b) Solve the equation. Verify the solution.

6.3

5. Solve each equation. Verify the solution.

a) $\frac{n}{4} = -8$ **b)** $\frac{m}{3} - 2 = 3$

c) $\frac{b}{-3} = 6$ **d)** $\frac{f}{-8} + 8 = 12$

6. For each sentence, write an equation. Solve the equation to find the number.

a) A number divided by -7 is 4.

b) A number divided by -9 is -3.

c) Add 5 to a number divided by -2 and the sum is 0.

6.4

7. Draw a rectangle to show that: $6(3 + a) = 18 + 6a$

8. Expand.

a) $3(x + 11)$ **b)** $5(12 + y)$

c) $-7(a - 4)$ **d)** $-12(-t + 6)$

6.5

9. Use the distributive property to solve each equation. Verify the solution.

a) $3(x + 2) = 21$ **b)** $4(p - 3) = 16$

c) $-5(r + 4) = -15$ **d)** $6(-s - 3) = 24$

10. Jon is playing a game. He starts with some points. On his first turn, Jon wins 6 points. On his second turn, Jon's points are doubled. He then has 26 points. How many points did Jon start with?

a) Write an equation to model this problem.

b) Solve the equation. Verify the solution.