Worksheet 3.4 Solutions
Number Story Questions

1. Let n represent the number. — Set up.

$$2n+3=85$$
$$2n+3-3=85-3$$
$$2n=82$$
$$\frac{2n}{2}=\frac{82}{2}$$
$$n=41$$

Solve

$\therefore$ the number is 41.

2. Let n represent the number. — Set up

$$7n-11=129$$
$$7n-11+11=129+11$$
$$7n=140$$
$$\frac{7n}{7}=\frac{140}{7}$$
$$n=20$$

Solve

$\therefore$ the number is 20.

3. Let d, $3d$ represent David's age and Tom's age in years — Set up

$$d+3d=52$$
$$\frac{4d}{4}=\frac{52}{4}$$
$$d=13$$

$$3d=3(13)=39$$

Solve

$\therefore$ David is 13 years old, Tom is 39 years old.

4. Let m, $2m$ represent Mary and Peter's ages in years — Set up

$$(m-7)+(2m-7)=31$$
$$3m-14=31$$
$$3m-14+14=31+14$$
$$3m=45$$
$$\frac{3m}{3}=\frac{45}{3}$$
$$m=15$$

$$2m=30$$

Solve

$\therefore$ Mary is 15 years old, Peter is 30 yrs old.

5. Let w, $w+4$ represent the width and length of the rectangle in m.

Recall: $P = 2w + 2l$

Set up.

$$2(w) + 2(w+4) = 128$$

$$2w + 2w + 8 = 128$$
$$4w + 8 = 128$$
$$4w + 8 - 8 = 128 - 8$$
$$\frac{4w}{4} = \frac{120}{4}$$
$$w = 30$$

$w + 4 = 30 + 4 = 34$

Solve.

$\therefore$ the rectangle is 34m x 30m.

6. Let x, $x+1$, $x+2$ represent the numbers.

Set up.

$$x + (x+1) + (x+2) = 246$$

$$3x + 3 = 246$$
$$3x + 3 - 3 = 246 - 3$$
$$\frac{3x}{3} = \frac{243}{3}$$
$$x = 81$$

Solve.

$\therefore$ the numbers are 81, 82 and 83.

7. Let s, $s+8$ represent Frank's sister's age and Frank's age in years.

Note: in 3 years $(s+3)$, $(s+8+3)$ are sister's age, Frank's age

$$2(s+3) = (s+8)+3$$

$$2s + 6 = s + 11$$
$$-s - 6 \quad -s - 6$$
$$s = 5$$

$s + 8 = 13$

$\therefore$ Frank is 13yrs, his sister is 5 years old.

8. Let $x, x+1, x+2, x+3, x+4$ represent the integers. (set up)

$$x+(x+1)+(x+2)+(x+3)+(x+4)=-115$$

$$5x+10=-115$$
$$-10 \quad -10$$
$$5x=-125$$
$$\frac{5}{5} \quad \frac{5}{5}$$
$$x=-25$$

∴ the integers are $-25, -24, -23, -22, -21$

9. Let F, $6F$, $3F$ represent the value of Fred's money, Dave's money and Bill's money (set up)

$$F+6F+3F=550$$

$$10F=550$$
$$\frac{10}{10} \quad \frac{10}{10}$$
$$F=55 \quad 6F=330 \quad 3F=165$$

∴ Fred has $55, Dave has $330, Bill has $165.

10. Let j represent John's age now (yrs). (set up)

$$\frac{1}{2}(j+2)+\frac{1}{3}(j-3)=20$$

LCM 6

$$\frac{6}{2}(j+2)+\frac{6}{3}(j-3)=\frac{6}{1}(20)$$
$$3(j+2)+2(j-3)=6(20)$$
$$3j+6+2j-6=120$$
$$\frac{5j}{5}=\frac{120}{5}$$
$$j=24$$

∴ John is 24 yrs old.

check
$\frac{1}{2}$ of 26 + $\frac{1}{3}$ of 21
= 13 + 7
= 20 ✓

3.4 Solutions

11. Let b, $2b-3$ represent the length of the base of the triangle and the length of the equal sides (cm). [Set up.]

$$b + 2(2b-3) = 79$$

$$b + 4b - 6 = 79$$
$$5b - 6 = 79$$
$$+6 \quad +6$$
$$5b = 85$$
$$\frac{5b}{5} = \frac{85}{5}$$
$$b = 17$$

$2(17)-3$
$= 34-3$
$= 31$

∴ the base is 17cm, the equal sides are 31cm.

12. Let a, $a+395$ represent the lengths of the Amazon River, the Nile River in km. [set up.]

$$a + (a+395) = 12983$$

$$2a + 395 = 12983$$
$$-395 \quad -395$$
$$2a = 12588$$
$$\frac{2a}{2} = \frac{12588}{2}$$

$$a = 6294$$

$a+395$
$= 6294+395$
$= 6689$

∴ the Amazon is 6294 km long, the Nile is 6689 km long.

Worksheet 3.4 Number Story Questions

Provide full solutions for the following Story Questions.

1. Two times a number, increased by 3, is 85. Find the number.

2. Seven times a number, decreased by 11, is 129. Find the number.

3. Tom is three times as old as David and the sum of their ages is 52. Find their ages.

4. Pete is twice as old as Mary. Seven years ago then sum of their ages was 31. Find their ages.

5. The length of a rectangle is 4 m longer than the width. If the perimeter of the rectangle is 128 m, what are the dimensions of the rectangle?

6. Find three consecutive integers whose sum is 246.

7. Frank is eight years older than his sister. In three years he will be twice as old as she is. How old are they now?

8. Find five consecutive integers whose sum is -115.

9. Dave has six times as much money as Fred and Bill has three times as much as Fred. Together they have $550. How much does each have?

10. One-half of John's age two years from now plus one-third of his age three years ago is 20. How old is John?

11. In a certain isosceles triangle, to find the length of one of the equal sides you must double the base and subtract 3 cm. If the perimeter of the triangle is 79 cm, what are the dimensions of the triangle?

12. The Nile River is 395 km longer than the Amazon River. The sum of their lengths is 12983 km. How long is the Nile?

Answers:
1. 41 2. 20 3. 13 and 39 4. 15 and 30 5. w = 30 m and l = 34 m 6. 81, 82, 83
7. 5 and 13 8. -25,-24,-23,-22,-21 9. Fred has $55, Dave has $330 and Bill has $165 10. 24
11. equal sides are 31 cm 12. Amazon = 6294 km and Nile = 6689 km