

Problems

1. The floor of a basement in a building is six feet below ground level. There are 11 feet between each floor.
 - a. How high above ground is the 1st floor?
 - b. How high above ground is the 2nd floor?
 - c. How high above ground is the 6th floor?
 - d. How high above ground is the 8th floor?

2. Joe is 582 meters from home when he begins to skateboard toward home at a rate of 15 meters per second.
 - a. How far from home is Joe after 1 second?
 - b. How far from home is Joe after 2 seconds?
 - c. How far from home is Joe after 6 seconds?
 - d. How far from home is Joe after 10 seconds?

3. Vance has \$8 dollars in his piggy bank when he begins saving \$7 a week.
 - a. How much money will Vance have after one week?
 - b. How much money will Vance have after three weeks?
 - c. How much money will Vance have after six weeks?
 - d. How much money will Vance have after eight weeks?

Recursive Routines

For each problem write a recursive routine, and then use it to answer the questions that follow.

1. Jenny has \$37 dollars and each week she saves \$11.

a. How much money will she have after six weeks?

b. How much money will she have after 14 weeks?

c. When will she have over \$200?

d. When will she have over \$350?

2. Nick has \$528 and he spends \$15 dollars each week.

a. How much money will he have after six weeks?

b. How much money will he have after 14 weeks?

c. When will he have less than \$175?

d. When will he have less than \$25?

3. Tom's grade is a 47. Each week his grade has been going up three points.
 - a. What will his grade be in four weeks?
 - b. What will his grade be in seven weeks?
 - c. When will his grade be a B (80)?
 - d. When will his grade be an A (90)?

4. In a building the basement is six feet below the ground. There are 14 feet between each floor.
 - a. How high above the ground is the 3rd floor?
 - b. How high above the ground is the 12th floor?
 - c. What is the first floor that is above 180 feet?
 - d. What is the first floor that is above 322 feet?

5. Derek is 300 meters from home when he starts running. Each second Derek is 7 meters closer to home.
 - a. How far from home will Derek be after 13 seconds?
 - b. How far from home will Derek be after 28 seconds?
 - c. When will Derek be less than 50 meters from home?
 - d. When will Derek be home?

Isn't There an Easier Way?

1. Joe's mother has instituted a reward system for Joe's behavior. If Joe is a good boy each week he gets two pieces of candy. Presently, Joe does not have any pieces of candy.
 - a. Write a recursive routine on the calculator that will give the number of pieces of candy Joe has for any given week. Assume that he is a good boy from this point forward.
 - b. Fill in the table below.

Week	Candies
0	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	

Week	Candies
70	
77	
86	
99	
112	
127	
200	
222	
334	
350	
351	
413	
421	
475	
483	

Week	Candies
498	
512	
567	
601	
657	
692	
712	
715	
719	
745	
777	
870	
902	
975	
999	

2. Tom's mother has offered to give Tom \$3 for every week that he does not fight with his brothers. Tom has \$1 in his piggy bank right now.
- a. Write a recursive routine on the calculator that will give the amount of money Tom has for any given number of weeks. Assume that he does not get in any fights with his brothers.
- b. Fill in the table.

Week	Dollars
0	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	

Week	Dollars
43	
50	
62	
89	
99	
112	
157	
162	
192	
223	
250	
278	
312	
350	
426	

Week	Dollars
512	
628	
702	
708	
728	
734	
756	
802	
807	
820	
900	
1000	
1001	
1234	
1524	

Another Isn't There an Easier Way?

1. Jenny has \$5 dollars in her piggy bank. She has started to save \$4 every week.
 - a. Write a recursive routine on the calculator that will give the amount of money Jenny has saved for any given week.
 - b. Use your recursive routine to fill in the table below.

Week	Dollars
0	
1	
2	
3	
4	
5	
8	
9	
11	
13	
15	
16	
18	
20	
21	

Week	Dollars
30	
32	
38	
43	
45	
52	
63	
66	
104	
120	
160	
210	
260	
320	
364	

Week	Dollars
413	
454	
489	
500	
568	
625	
684	
715	
730	
745	
812	
820	
856	
900	
999	

2. Write down the easier way to continue each table instead of using a recursive routine.

a.

Week	Dollars
0	3
1	7
2	11
3	15
4	19

b.

Week	Dollars
0	5
1	7
2	9
3	11
4	13

c.

Week	Dollars
0	1
1	6
2	11
3	16
4	21

d.

Week	Dollars
0	3
1	3
2	3
3	3
4	3

e.

Week	Dollars
0	8
1	12
2	16
3	20
4	24

f.

Week	Dollars
0	1
1	-2
2	-5
3	-8
4	-11

Writing Linear Equations from Word Problems

Write an equation for each problem.

1. A repair company charges \$20 per hour and an initial fee of \$50.
2. A phone company charges \$30 for basic service and \$0.10 a minute.
3. Vance has \$1,000 when he begins spending money at \$8 per day.
4. Tom is saving \$11 a week and he initially has \$500.
5. A rope is 150 cm long and each knot tied in the rope decreases the length by 8 cm.
6. Ben is 349 meters from home when he begins running toward home at the rate of 7 meters per second.
7. Jake is 7 meters from home when he begins running away from home at a rate of 5 meters per second.
8. After three seconds Ashleigh is 111 meters from school, and after seven seconds Ashleigh is 99 meters from school.
9. After seven seconds Aaron is 31 meters from the zoo, and after 12 seconds he is 51 meters from the zoo.
10. After two weeks Amanda has \$164, and after eight weeks she has \$122.
11. When a rope has three knots tied it has a length of 144 cm, and when it has nine knots tied it has a length of 120 cm.
12. After two weeks Rachel has \$77, and after ten weeks she has \$173.

Writing Linear Equations from Tables

Write an equation for each table.

1.

0	3
1	6
2	9
3	12
4	15

2.

0	-4
1	-2
2	0
3	2
4	4

3.

0	0
1	0
2	0
3	0
4	0

4.

0	5
1	9
2	13
3	17
4	21

5.

0	2
1	3
2	4
3	5
4	6

6.

-2	-15
-1	-11
1	-3
3	5
6	17

7.

-3	1
-2	1
3	1
5	1
7	1

8.

-3	18
1	2
3	-6
5	-14
7	-22

9.

-3	3
-1	-1
2	-7
3	-9
4	-11

10.

-3	5
-3	2
-1	-1
2	-10
4	-16

11.

-3	4
-1	-2
0	-5
2	-11
3	-14

12.

2	7
3	9
4	11
5	13
6	15

13.

-3	17
-2	12
-1	7
3	-13
4	-18

14.

-2	12
1	-6
2	-12
3	-18
4	-24

15.

-3	4
-2	1
-1	-2
2	-11
4	-17

Writing Linear Equations from Tables Part 2

Write an equation for each table.

1.

2	3
4	7
6	11
8	15
10	19

2.

1	5
4	14
6	20
9	29
12	38

3.

3	-9
7	-25
9	-33
11	-41
15	-57

4.

5	3
8	3
12	3
14	3
19	3

5.

4	8
6	12
9	18
11	22
13	26

6.

2	1
5	-2
7	-4
14	-11
17	-14

7.

3	5
6	20
8	30
10	40
13	55

8.

1	-7
3	-11
7	-19
9	-23
12	-29

9.

2	1
5	4
7	6
10	9
15	14

10.

2	-4
5	-13
8	-22
12	-34
14	-40

11.

4	11
7	20
10	29
13	38
15	44

12.

2	-1
5	-7
8	-13
14	-25
17	-31

13.

1	4
3	14
7	34
9	44
13	64

14.

3	-2
7	-2
9	-2
11	-2
15	-2

15.

2	6
7	21
9	27
11	33
14	52

Writing Linear Equations from Word Problems

Write an equation for each problem.

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