

HW 7-3

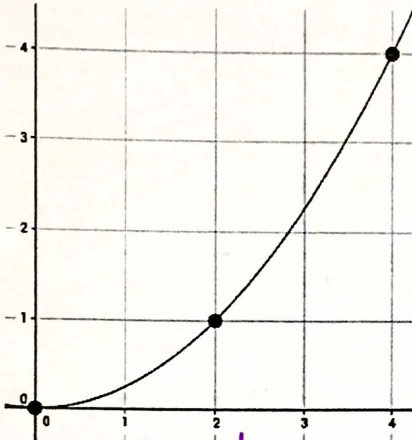
Proportional and Non-Proportional Relationships

Unit 7

Int 1

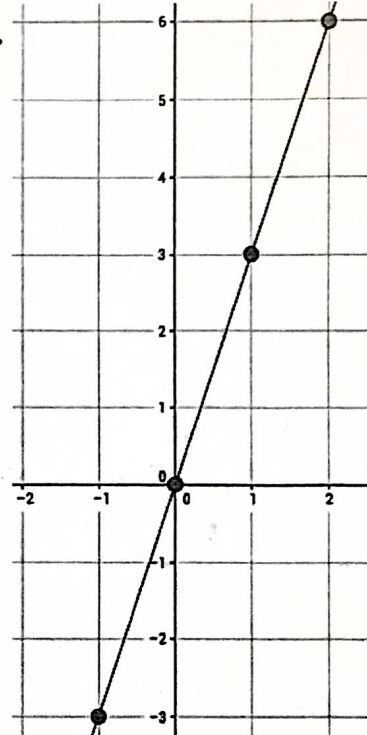
For each of the following graphs, state whether they represent a proportional or non-proportional relationship and how you know.

1.

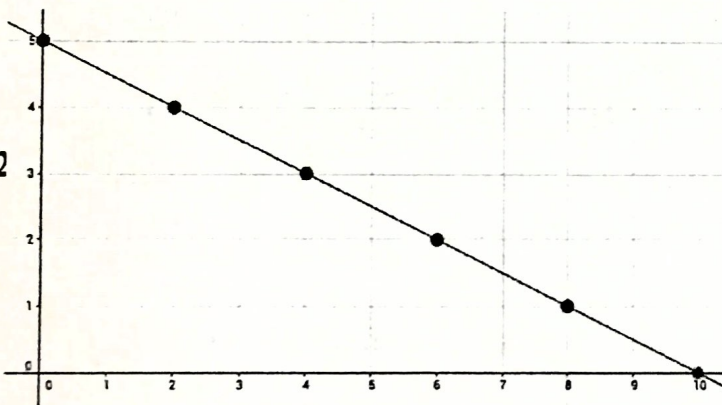


- Non-proportional
- Not a straight line

4.

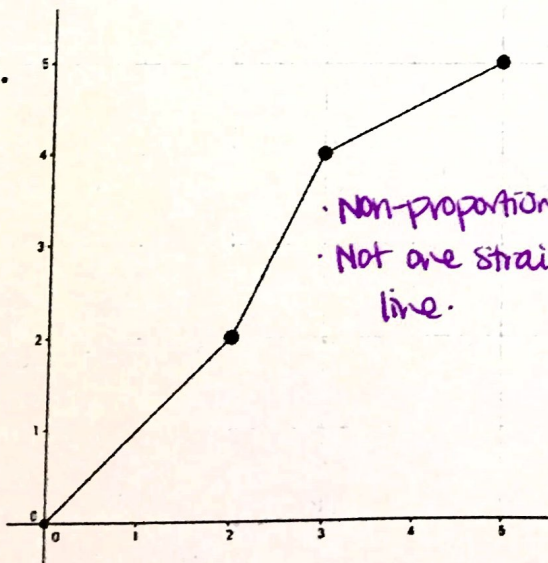


2.

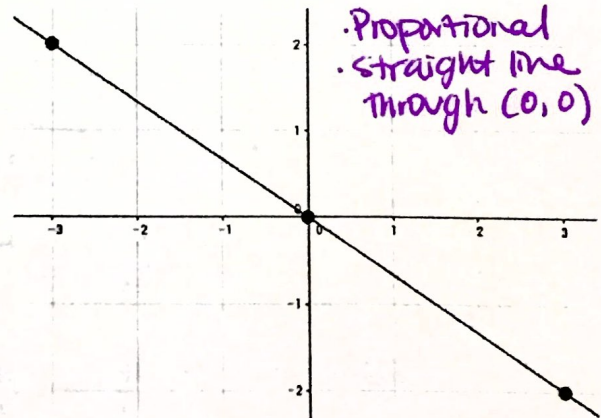


5.

3.



- Non-proportional
- Not one straight line.



- Proportional
- straight line through (0,0)

Use the table to solve. Then explain your reasoning.

6. Which situation represents a proportional relationship between the number of laps run by each student and their time? Show your work and circle your answer:

Answer: MARIA or DESMOND

Laps, x	2	4	6
Maria's Time (s), y	150	320	580

Laps, x	2	4	8
Desmond's Time (s), y	146	292	584

7. Blake ran laps around the gym. His times are shown in the table. Blake is trying to decide whether the number of laps is proportional to the time. Find his mistake and correct it.

Time (minutes)	1	2	3	4
Laps	3	5	7	9

Blake's Thinking: It is proportional because the number of laps always increases by 2.

That's the constant rate of change. To show it's proportional, we take each point from the table & write:

$\frac{y}{x}$ $\frac{3}{1} = 3$ $\frac{5}{2} = 2.5$ $\frac{7}{3} = 2.\bar{3}$ $\frac{9}{4} = 2.25$ They are NOT equal. So it is NOT proportional.

8. A scuba diver *descends*, or goes farther underwater, at a constant rate of -5 feet every 20 seconds. Is the depth to which the diver descends proportional to the number of seconds it takes to get there? Show work and explain how you know.

Time (seconds), x	20	40	60	80
Depth (ft), y				

Explanation:

Use a table to help you solve. Then explain your reasoning.

9. Plant A is 18 inches tall after one week, 36 inches tall after two weeks, 56 inches tall after three weeks. Plant B is 18 inches tall after one week, 36 inches tall after two weeks, 54 inches tall after three weeks. Fill out the tables. Circle which situation represents a proportional relationship between the plants' height and the number of weeks it has been growing: PLANT A or PLANT B

Week, x	1	2	3
Plant A's Height, y	18	36	56

Week, x	1	2	3
Plant B's Height, y	18	36	54

Show work: $\frac{18}{1} = 18$ $\frac{36}{2} = 18$

$\frac{56}{3} \neq 18$

$\frac{18}{1} = 18$

$\frac{36}{2} = 18$

$\frac{54}{3} = 18$

YES! Prop!

10. On Saturday, Sarah gave away 52 coupons an hour. Fill out the table. Is the number of coupons Sarah gave away proportional to the number of hours she worked that day?

Hours worked on Sunday	1	2	3	4
Coupons Given away on Sat.				

11. The fee for ride tickets at a carnival is shown in the table below.

Tickets	5	10	15	20
Fee (\$)	5	9.50	14	18.50

Handwritten notes: +5, +5, +5, +5, +25, +30, +4.50, +4.50

a) Is the fee proportional to the number of tickets? Explain your reasoning.

NO. There is NO constant of proportionality. (NO COP.)

b) Determine the fee for 30 ride tickets? Explain how you found it.

Answer: —

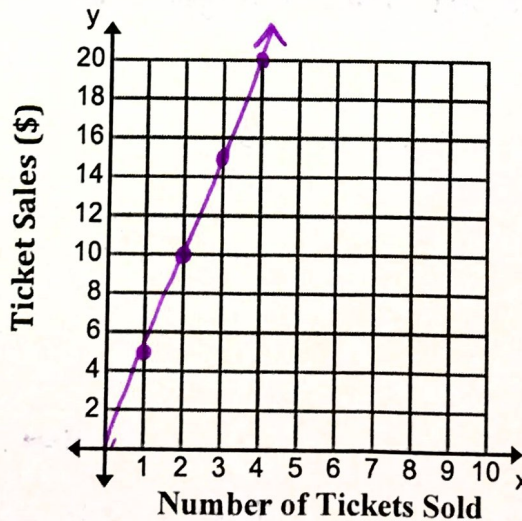
Find by building onto the table.

12. Brianna started with 20 songs on her iPod. Then, she downloaded 9 new songs each month. Complete the table below. Is the number of songs downloaded proportional to how many months have passed?

Month	0	1	2	3
Number of Songs				

13. Tickets to the school dance cost \$5 per student. Are the ticket sales proportional to the number of tickets sold? Complete the graph below and explain how you know.

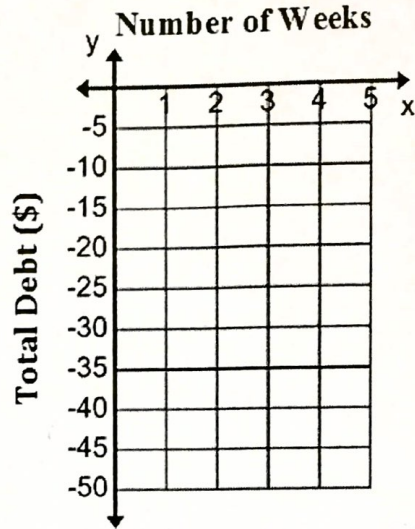
Number of tickets sold	Ticket Sales
1	\$5
2	\$10
3	\$15



Explanation: YES, it's proportional. straight line through the origin.

14. Each week I borrow \$15 from my parents. The table below shows my debts for a number of weeks. Is my debt proportional to the number of weeks? Complete the graph below and explain how you know.

Weeks	Debt (\$)
1	-15
2	-30
3	-45

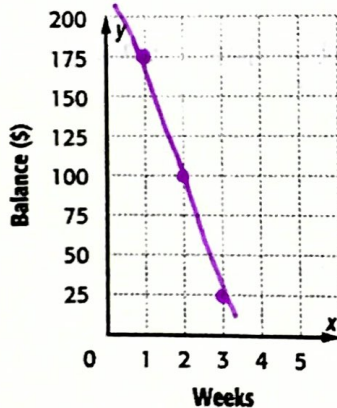


Explanation:

Determine whether the relationship between the two quantities shown in each table is proportional by graphing on the coordinate plane. Explain your reasoning.

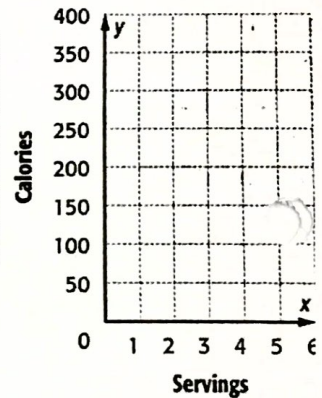
15.

Savings Account	
Week	Account Balance (\$)
1	175
2	100
3	25



16.

Calories in Fruit Cups	
Servings	Calories
1	100
3	300
4	400



Explanation:

Not proportional.
It's a straight line, but will not cross through (0,0).

Explanation:

17. The Calories burned for exercising various number of minutes are shown in the graph. Which statement about the graph is **NOT TRUE**?

A) The number of Calories burned is proportional to the number of minutes spent exercising. *True!*

B) The number of Calories burned is not proportional to the number of minutes spent exercising.

C) The line passes through the origin. *True!*

D) The line is straight. *True!*

✓ Prove that it is proportional.

