

Creating Equation Practice

8.F.4

Define variables and create equations for each of the following situations.

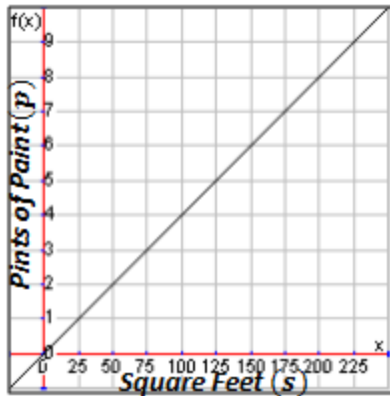
1. It will cost \$45 to replace the chain on your bicycle plus \$15 per hour of labor.
2. The musical cast started with \$1200 in donations and earns \$45 for every 6 tickets sold.
3. At the beginning of the year, you receive 20 free participation points. You can lose 2 participation points every time you forget to bring your supplies to class.
4. A farmer must pay \$50 to participate in the farmers market, but he will earn \$5 for every 2 bundles of asparagus.
5. You use 9 yards of yarn for every 3 rows of a crocheted blanket.
6. It takes you 11 minutes for every 2 miles you run.
7. You earn an extra life for every 100 coins you gain in Super Mario Bros.
8. You bought baseball cards at \$5 for 3 cards and added them to your collection of 123 baseball cards.
9. It takes you 9 minutes for every 2 toilets to clean, and you have already spent 45 minutes cleaning the house.
10. You spend 5 minutes on every 2 questions on the test.
11. Your parents pay you \$5 for every hour you babysit but already owe them \$10.
12. Student council ordered one pizza for every 4 students that are attending the after school dance.

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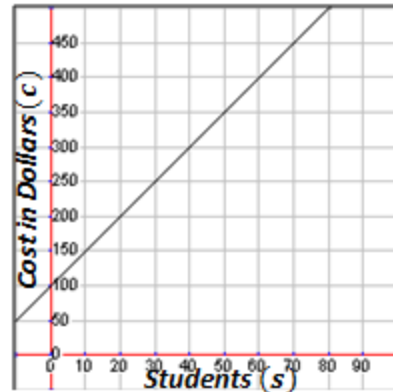
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Create an equation for the following graphs.

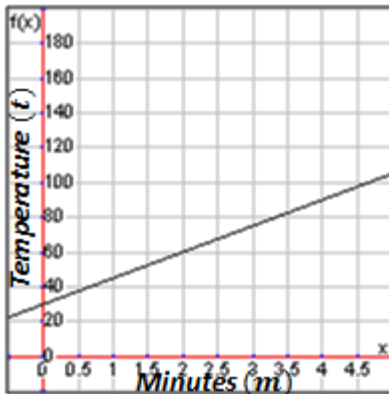
13. Number of pints of paint (p) needed for a certain number of square feet (s)



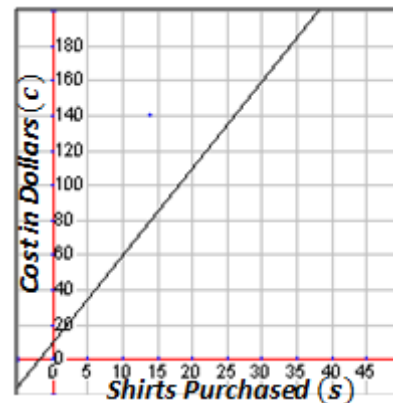
14. The cost (c) of a field trip based on the number of students (s) attending



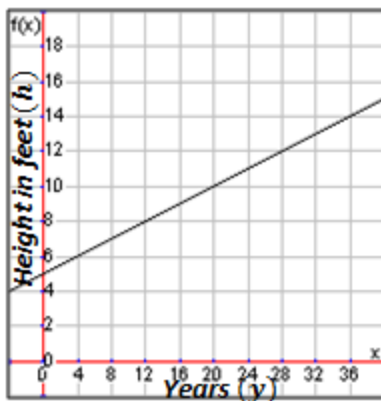
15. Temperature (t) of water per minute (m) of time on the stove



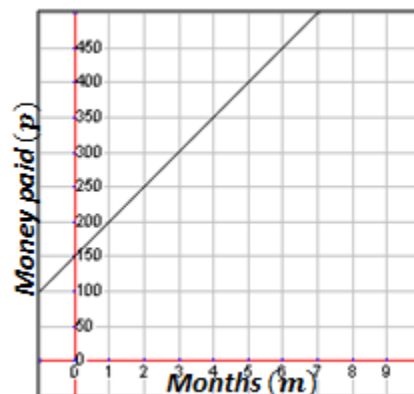
16. Cost (c) of an order depending on the number of shirts (s) purchased



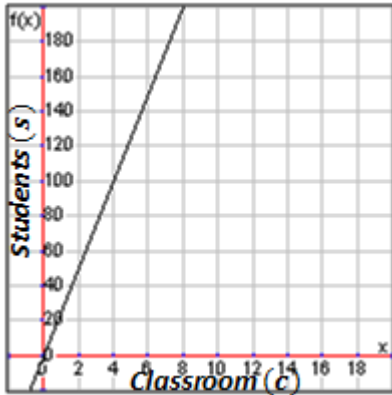
17. A tree's height (h) based on the number of years (y) since being transplanted



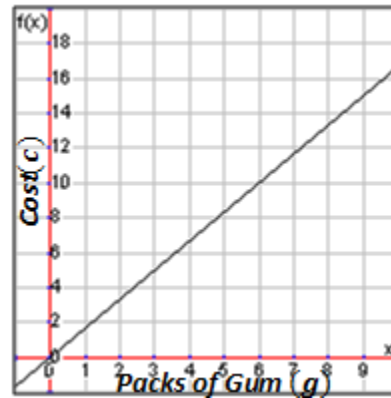
18. Money paid (p) for your first car over time in months (m)



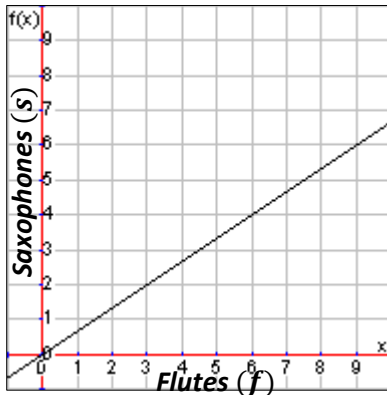
19. Number of students (s) in every classroom (c)



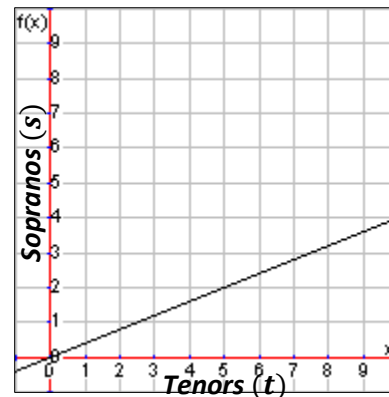
20. Cost (c) for packs of gum (g)



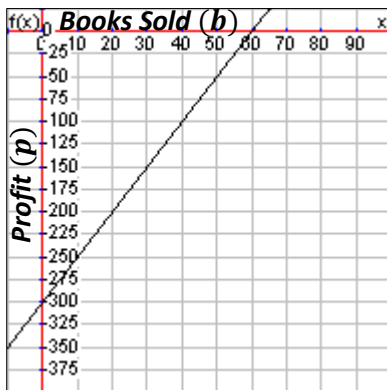
21. Number of saxophones (s) compared to the number of flutes (f) in an orchestra



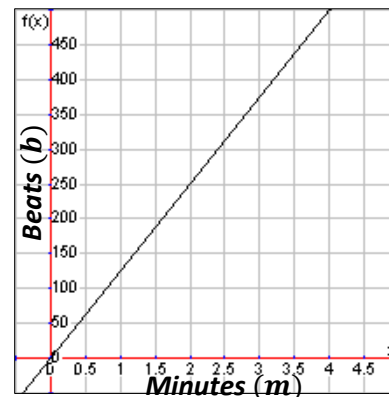
22. Number of sopranos (s) compared to the number of tenors (t) in a choir.



23. Amount of profit (p) based on the number of books sold (b)



24. Number of beats (b) per minute (m) in a hip-hop song



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Create an equation for the following tables.

25. The total cost (c) for miles (m) traveled in a taxi.

m	2	4	6	8	10
c	\$4.50	\$6	\$7.50	\$9	\$10.50

27. The number of frogs (f) ordered for students (s) in science class.

s	9	15	21	27	33
f	7	9	11	13	15

29. The total weight of an aquarium (a) holding gallons (g) of water.

g	100	110	120	130	140
a	930	1015	1100	1185	1270

31. The total cost (c) per tournament (t)

t	2	4	6	8	10
c	\$225	\$400	\$575	\$750	\$925

33. The amount of profit (p) of a stand selling lemon shake-ups (l).

l	250	300	350	400	450
p	\$50	\$200	\$350	\$500	\$650

35. The length (l) of a bungee cord that is stretched depending on the weight (w) of the jumper.

w	100	110	120	130	140
l	80	83	86	89	92

26. The total cost (c) to buy guitar picks (p).

p	5	10	15	20	25
c	\$2	\$4	\$6	\$8	\$10

28. The distance traveled (d) in hours (h).

h	2	3	4	5	6
d	14	21	28	35	42

30. The number of hotel rooms (h) for athletes (a).

a	8	12	16	20	24
h	2	3	4	5	6

32. The money earned (m) in a number of weeks (w).

w	2	4	6	8	10
m	\$10	\$20	\$30	\$40	\$50

34. The total cost (c) per hole of golf (g).

g	9	18	27	36	45
c	\$15	\$30	\$45	\$60	\$75

36. The number of dogs (d) to herd cattle (c).

c	9	15	21	27	33
d	3	5	7	9	11

Define variables and create equations for each of the following situations.

1. It will cost \$45 to replace the chain on your bicycle plus \$15 per hour of labor.

$$c = \text{total cost}; h = \text{hours of labor}$$

$$c = 15h + 45$$

2. The musical cast started with \$1200 in donations and earns \$45 for every 6 tickets sold.

$$m = \text{total money for the musical}; t = \text{number of tickets sold}$$

$$m = \frac{15}{2}t + 1200 \text{ or } m = 7.5t + 1200$$

3. At the beginning of the year, you receive 20 free participation points. You can lose 2 participation points every time you forget to bring your supplies to class.

$$p = \text{total participation points}; s = \text{number of times supplies are forgotten}$$

$$p = -2s + 20$$

4. A farmer must pay \$50 to participate in the farmers market, but he will earn \$5 for every 2 bundles of asparagus.

$$m = \text{total money earned}; a = \text{number of asparagus bundles sold}$$

$$m = \frac{5}{2}a - 50 \text{ or } m = 2.5a - 50$$

5. You use 9 yards of yarn for every 3 rows of a crocheted blanket.

$$y = \text{total yarn used}; r = \text{number of rows in the blanket}$$

$$y = 3r$$

6. It takes you 11 minutes for every 2 miles you run.

$$t = \text{total time spent running}; d = \text{miles run}$$

$$t = \frac{11}{2}d \text{ or } t = 5.5d$$

7. You earn an extra life for every 100 coins you gain in Super Mario Bros.

$$e = \text{extra lives earned}; c = \text{number of coins collected}$$

$$e = \frac{1}{100}c$$

8. You bought baseball cards at \$5 for 3 cards and added them to your collection of 123 baseball cards.

$$b = \text{total number of baseball cards collected}; m = \text{money spent on baseball cards}$$

$$b = \frac{3}{5}m + 123$$

9. It takes you 9 minutes for every 2 toilets to clean, and you have already spent 45 minutes cleaning the house.

$$t = \text{total time spent cleaning}; l = \text{number of toilets cleaned}$$

$$t = \frac{9}{2}l + 45 \text{ or } t = 4.5l + 45$$

10. You spend 5 minutes on every 2 questions on the test.

$$t = \text{total time spent taking the test}; q = \text{number of questions on the test}$$

$$t = \frac{5}{2}q \text{ or } t = 2.5q$$

11. Your parents pay you \$5 for every hour you babysit but already owe them \$10.

$$m = \text{total money earned}; h = \text{number of hours babysitting}$$

$$m = 5h - 10$$

12. Student council ordered one pizza for every 4 students that are attending the after school dance.

$$p = \text{total pizzas needed}; s = \text{number of students attending the dance}$$

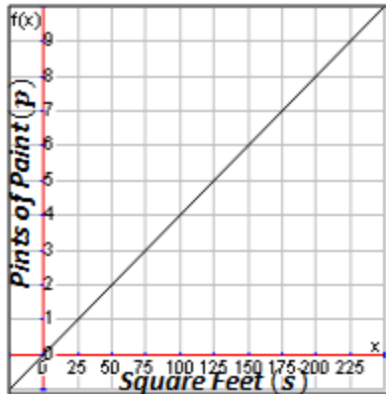
$$p = \frac{1}{4}s \text{ or } p = 0.25s$$

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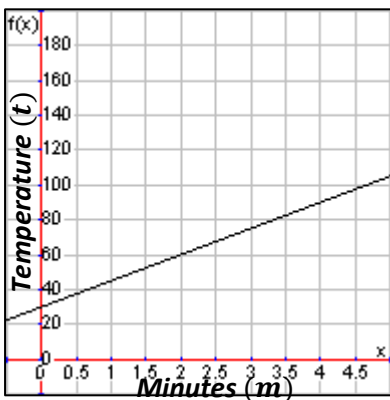
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13. Number of pints of paint (p) needed for a certain number of square feet (s)



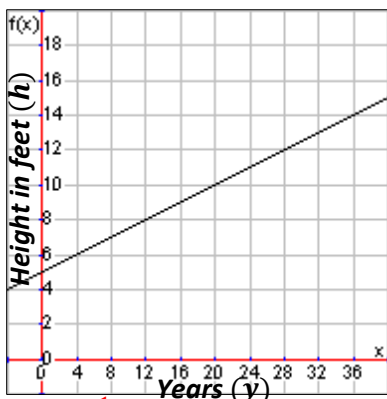
$$p = \frac{1}{25}s \text{ or } p = 0.04s$$

15. Temperature (t) of water per minute (m) of time on the stove



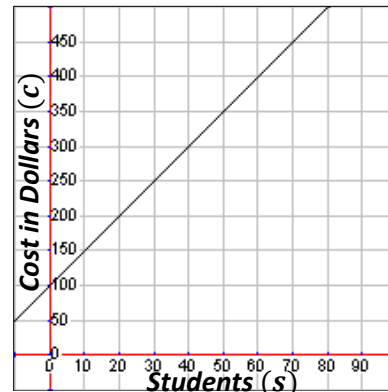
$$t = 15m + 30$$

17. A tree's height (h) based on the number of years (y) since being transplanted



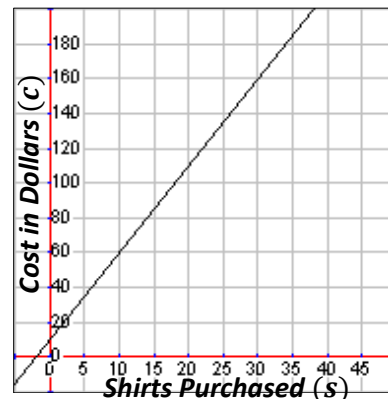
$$h = \frac{1}{4}y + 5 \text{ or } h = 0.25y + 5$$

14. The cost (c) of a field trip based on the number of students (s) attending



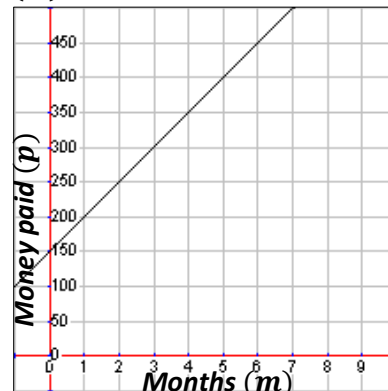
$$c = 5s + 100$$

16. Cost (c) of an order depending on the number of shirts (s) purchased



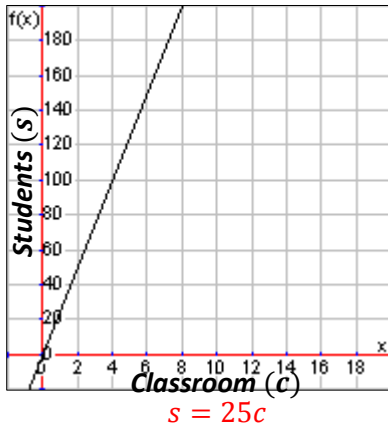
$$c = 5s + 10$$

18. Money paid (p) for your first car over time in months (m)

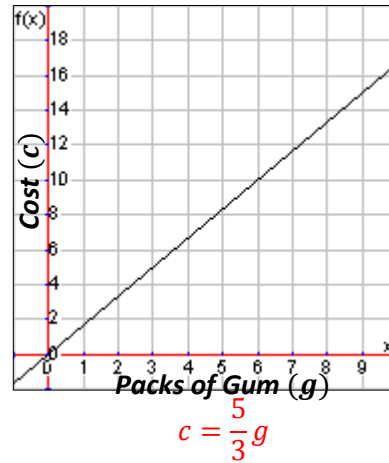


$$p = 50m + 150$$

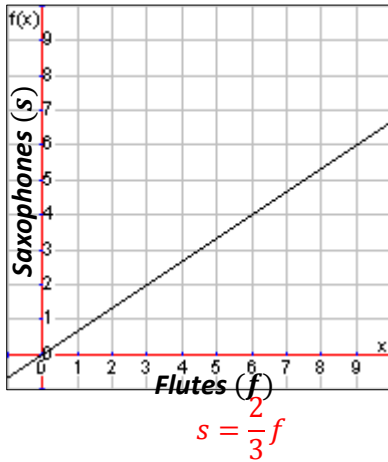
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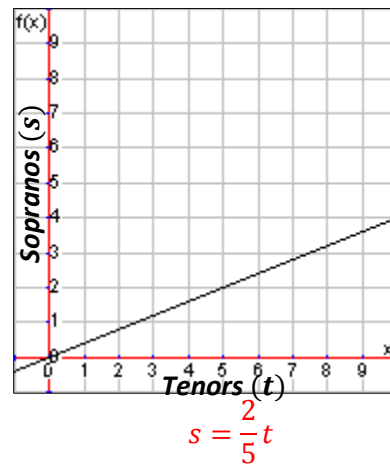
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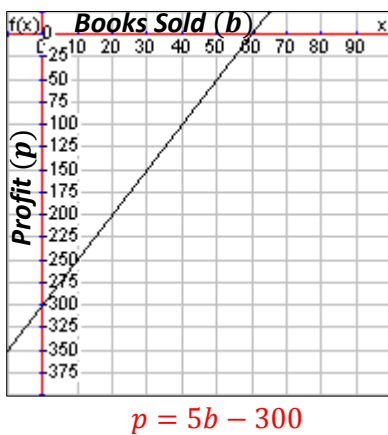
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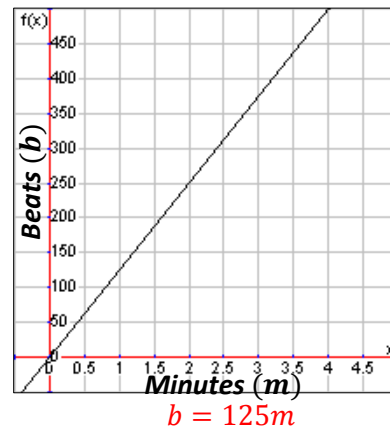
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c	\$4.50	\$6	\$7.50	\$9	\$10.50

$$c = 0.75m + 3$$

27. The number of frogs (f) ordered for students (s) in science class.

s	9	15	21	27	33
f	7	9	11	13	15

$$f = \frac{1}{3}s + 4$$

29. The total weight of an aquarium (a) holding gallons (g) of water.

g	100	110	120	130	140
a	930	1015	1100	1185	1270

$$a = 8.5g + 80$$

31. The total cost (c) per tournament (t)

t	2	4	6	8	10
c	\$225	\$400	\$575	\$750	\$925

$$c = 87.5t + 50$$

33. The amount of profit (p) of a stand selling lemon shake-ups (l).

l	250	300	350	400	450
p	\$50	\$200	\$350	\$500	\$650

$$p = 3l - 700$$

35. The length (l) of a bungee cord that is stretched depending on the weight (w) of the jumper.

w	100	110	120	130	140
l	80	83	86	89	92

$$l = 0.3w + 50$$

26. The total cost (c) to buy guitar picks (p).

p	5	10	15	20	25
c	\$2	\$4	\$6	\$8	\$10

$$c = 0.4p$$

28. The distance traveled (d) in hours (h).

h	2	3	4	5	6
d	14	21	28	35	42

$$d = 7h$$

30. The number of hotel rooms (h) for athletes (a).

a	8	12	16	20	24
h	2	3	4	5	6

$$h = \frac{1}{4}a$$

32. The money earned (m) in a number of weeks (w).

w	2	4	6	8	10
m	\$10	\$20	\$30	\$40	\$50

$$m = 5w$$

34. The total cost (c) per hole of golf (g).

g	9	18	27	36	45
c	\$15	\$30	\$45	\$60	\$75

$$c = \frac{5}{3}g$$

36. The number of dogs (d) to herd cattle (c).

c	9	15	21	27	33
d	3	5	7	9	11

$$d = \frac{1}{3}c$$