1.

$m = \frac{2}{3}$; $(-9, 1)$

$y - 1 = \frac{2}{3}(x - (-9))$

$y - 1 = \frac{2}{3}(x + 9)$

$y - 1 = \frac{2}{3}x + 6$

$y = \frac{2}{3}x + 7$

2.

$m = -\frac{1}{2}$; $(3, -5)$

$y - (-5) = -\frac{1}{2}(x - 3)$

$y + 5 = -\frac{1}{2}(x - 3)$

$y + 5 = -\frac{1}{2}x + \frac{3}{2}$

$y = -\frac{1}{2}x - \frac{7}{2}$

3.

$(-4, -2)$ and $(1, 8)$

$m = \frac{8 - (-2)}{1 - (-4)} = \frac{10}{5} = 2$

$y - 8 = 2(x - 1)$

$y - 8 = 2x - 2$

$y = 2x + 6$

4.

$(6, -3)$ and $(-2, 2)$

$m = \frac{2 - (-3)}{-2 - 6} = \frac{5}{-8} = -\frac{5}{8}$

$y - 2 = -\frac{5}{8}(x + 2)$

$y - 2 = -\frac{5}{8}x - \frac{5}{4}$

$y = -\frac{5}{8}x + \frac{3}{4}$

(Note that either point can be used to determine slope-intercept form.)

5.

$m = \frac{(1{,}152 - 216)}{(16 - 3)} = 72$

$y - 216 = 72\,(x - 3)$

$y - 216 = 72x - 216$

$y = 72x$

x oz Saffron	y cost
3	216
16	1,152

6.
$(-5, -1), (-2, -3)$
$m = \frac{(-3-(-1))}{(-2-(-5))} = -\frac{2}{3}$
$y + 3 = -\frac{2}{3}(x + 2)$
$y + 3 = -\frac{2}{3}x - \frac{4}{3}$
$y = -\frac{2}{3}x - \frac{13}{3}$

7.
(hours, loaves), because the number of loaves depends on the time spent baking
point: (1, 1)
point: (4, 10)
$m = \frac{10-1}{4-1} = 3$
$y - 1 = 3(x - 1)$
$y - 1 = 3x - 3$
$y = 3x - 2$

8.
Pita started two loaves behind on his orders. The y-intercept of this equation, -2, represents the number of loaves that Pita started his day behind.

9.
$(x, 25)$
$25 = 3x - 2$
$27 = 3x$
$9 = x$
Pita would need to bake for 9 hours in order to be ahead by 25 loaves.

10.
(hours, money charged) $m = 18$. This means that \$18 is charged per hour worked.

11.
The y-intercept is (0, 45) of $b = 45$. This means for 0 hours of work, there is a \$45 fee charged.

12.
$(x, 144)$
$144 = 18x + 45$
$99 = 18x$
$x = 5.5$
Anna-Maria worked 5.5 hours on the project.

13.
(gallon, miles), (12,0), (6, 198)
$m = \frac{(198-0)}{(6-12)} = \frac{198}{-6} = -33$
$y - 0 = -33(x - 12)$
$y = -33x + 396$

14.
The rate of change is –33. This means that 33 miles are driven for every gallon of gas used. The rate of change is negative because the gas is being used while the car is being driven.

15.
The y-intercept (0, 396) shows how far the car has driven, 396 miles, when there is 0 gas left in the tank. (Note that running out of gas completely is not recommend for your vehicle.)

16.
(word, cost)
$m = 0.30$; $b = 6.25$
$y = 0.30x + 6.25$

17.
(100, y)
$y = 0.30(100) + 6.25$
$y = 30 + 6.25$
$y = 36.25$
The cost for 100 words is $36.25.