A-CED: Skills Practice Problems

2.1 #7: Graph on a coordinate plane

Miguel is riding his bike to lacrosse practice at a rate of 7 miles per hour.

	Independent Quantity	Dependent Quantity
Quantity	Time	Distance
Units	hours	miles
Expression	t	$7t$
	0	0
	0.5	3.5
	1	7
	1.5	10.5
	2	14

2. 2 #1: Graph on a coordinate plane

A hot air balloon cruising at 1000 feet begins to ascend. It ascends at a rate of 200 feet per minute.

	Independent Quantity	Dependent Quantity
Quantity	Time	Height
Units	minutes	feet
	0	1000
	2	1400
	4	1800
	6	2200
	8	2600
Expression	t	$200t + 1000$

3.3#7-12

Convert each equation from standard form to slope-intercept form.

7. $4x + 6y = 48$

$$4x + 6y = 48$$
$$4x - 4x + 6y = -4x + 48$$
$$\frac{6y}{6} = \frac{-4x + 48}{6}$$
$$y = -\frac{4}{6}x + 8$$
$$y = -\frac{2}{3}x + 8$$

8. $3x - 5y = 25$

9. $-4x + 9y = 45$

10. $6x - 2y = -52$

11. $-x - 8y = 96$

12. $12x + 28y = -84$

3.3 #13-18

Convert each equation from slope-intercept form to standard form.

13. $y = 5x + 8$

$$y = 5x + 8$$
$$-5x + y = 5x - 5x + 8$$
$$-5x + y = 8$$

14. $y = -4x + 2$

15. $y = \frac{2}{3}x - 6$

16. $y = -\frac{1}{2}x - 3$

17. $y = -5x - 13$

18. $y = \frac{3}{4}x + 10$

3.3 # 19-24

Solve each equation for the variable indicated.

19. The formula for the area of a triangle is $A = \frac{1}{2}bh$. Solve the equation for h.

$$A = \frac{1}{2}bh$$
$$(2)A = 2\left(\frac{1}{2}bh\right)$$
$$2A = bh$$
$$\frac{2A}{b} = \frac{bh}{b}$$
$$\frac{2A}{b} = h$$

20. The formula for the area of a trapezoid is $A = \frac{1}{2}(b_1 + b_2)h$. Solve the equation for b_1.

21. The formula for the area of a circle is $A = \pi r^2$. Solve the equation for r.

22. The formula for the volume of a cylinder is $V = \pi r^2 h$. Solve the equation for h.

23. The formula for the volume of a pyramid is $V = \frac{1}{3}lwh$. Solve the equation for w

24. The formula for the volume of a sphere is $V = \frac{4}{3}\pi r^3$. Solve the equation for r.

3.4 #1-6

Write a linear function in two different ways to represent each problem situation.

1. Mei paints and sells ceramic vases for $35 each. Each month she typically breaks 3 vases in the kiln. Write a linear function that represents the total amount Mei earns each month selling vases taking into account the value of the vases she breaks.

$f(x) = 35(x - 3)$

$f(x) = 35x - 105$

2. Isabel makes and sells fruit pies at her bakery for $12.99 each. Each month she gives away 4 pies as samples. Write a linear function that represents the total amount Isabel earns each month selling fruit pies taking into account the value of the pies she gives away as samples.

3. Mattie sells heads of lettuce for $1.99 each from a roadside farmer's market stand. Each week she loses 2 heads of lettuce due to spoilage. Write a linear function that represents the total amount Mattie earns each week selling heads of lettuce taking into account the value of the lettuce she loses due to spoilage.

4. Carlos prints and sells T-shirts for $14.99 each. Each month 5 T-shirts are misprinted and cannot be sold. Write a linear equation that represents the total amount Carlos earns each month selling T-shirts taking into account the value of the T-shirts that cannot be sold.

5. Odell prints and sells posters for $20 each. Each month 1 poster is misprinted and cannot be sold. Write a linear equation that represents the total amount Odell earns each month taking into account the value of the poster that cannot be sold.

6. Emilio builds and sells homemade wooden toys for $40 each. Each month he donates 3 toys to a children's hospital. Write a linear equation that represents the total amount Emilio earns each month selling toys taking into account the toys he donates.