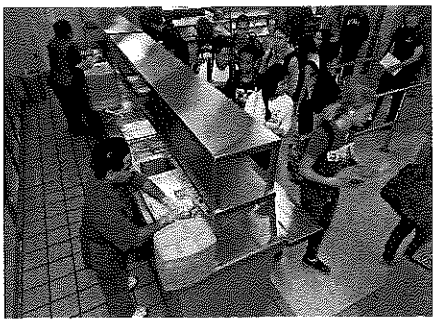
4. 3 Solving Equations Literally

A Practice Understanding Task



Solve each of the following equations for x:

1. $\frac{3x+2}{5}=7$

2. $\frac{3x+2y}{5}=7$

3. $\frac{4x}{3}-5=11$

4. $\frac{4x}{3}-5y=11$

5. $\frac{2}{5}(x+3)=6$

6. $\frac{2}{5}(x+y)=6$

7. $2(3x+4)=4x+12$

8. $2(3x+4y)=4x+12y$

Write a verbal description for each step of the equation solving process used to solve the following equations for x. Your description should include statements about how you know what to do next. For example, you might write, *"First I* _____, *because* _____..."

9. $\frac{ax+b}{c}-d=e$

10. $r\cdot\sqrt{\frac{mx}{n}+s}=t$

READY, SET, GO! Name Period Date

READY

Topic: Solving Inequalities.

Use the inequality $-9 < 2$ to complete each row in the table.

Apply each operation to the original inequality $-9 < 2$	Result	Is the resulting inequality true or false?
Example: Add 3 to both sides	-9+3 < 2+3 → -6 < 5	True
1. Subtract 7 from both sides.		
2. Add 15 to both sides.		
3. Add -10 to both sides.		
4. Multiply both sides by 10.		
5. Divide both sides by 5.		
6. Multiply both sides by -6.		
7. Divide both sides by -3.		

8. What operations when performed on an inequality, reverse the inequality? (Be very specific!)

SET

Topic: Solve literal equations that require more than one step.
Solve for the indicated variable. Show your work!!!

9. Solve for h. $Q = 25\pi h$

10. Solve for h. $Q = \pi r^2 h$

11. Solve for m. $y = 7m + 6$

12. Solve for m. $y = mx + b$

13. Solve for z. $A = (z + 7)3$

14. Solve for z. $A = (z + 7)w$

15. Solve for x. $\frac{x+2}{7} = 4$

16. Solve for x. $\frac{x+2y}{7} = 4$

17. Solve for x. $\frac{2x}{5} - 9 = 6$

18. Solve for x. $\frac{2x}{5} - 9y = 6$

19. Solve for x. $\frac{3}{4}(x - 2) = 12$

20. Solve for x. $\frac{3}{4}(x - 2y) = 12$

mathematics vision project

GO

Topic: Identifying x-intercepts and y-intercepts

Locate the x-intercept and y-intercept in the table. Write each as an ordered pair.

21.

x	y
-4	12
-3	10
-2	8
-1	6
0	4
1	2
2	0

x – intercept:

y – intercept:

22.

x	y
0	-6
3	-5
6	-4
9	-3
12	-2
15	-1
18	0

x – intercept:

y – intercept:

23.

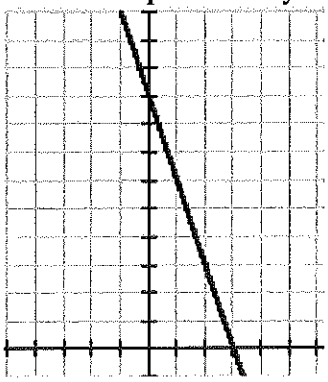
x	y
-3	10
-2	8
-1	6
0	4
1	2
2	0
3	-2

x – intercept:

y – intercept:

Locate the x-intercept and the y-intercept in the graph. Write each as an ordered pair.

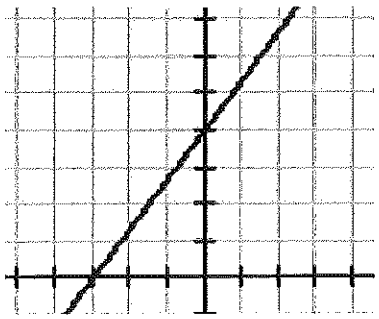
24.



x – intercept:

y – intercept:

25.



x – intercept:

y – intercept:

Solve each equation for x. Provide the justifications for each step. See the first example as a reminder for the types of justifications that might be used.

Example:

$3x - 6 = 15$	Justification
$+6 \quad +6$	Addition Property of equality
$\frac{3x}{3} = \frac{21}{3}$	Division Property of equality
$x = 7$	

26.

$4x - 10 = 2$	Justification

27.

$-16 = 3x + 11$	Justification

28.

$6 - 2x = 10$	Justification

29.

$6x + 3 = x + 18$	Justification

30.

$3x - 10 = 2x + 12$	Justification

31.

$12x + 3y = 15$	Justification

32.

$X(B + 7) = 9$	Justification