

Curriculum Outcome

PR1: . Generalize a pattern arising from a problem-solving context using linear equations and verify by substitution.

PR3. Model and solve problems using linear equations of the form:

$$ax = b; = b, a \neq 0; ax + b = c; +b = c, a \neq 0; = b, x \neq 0$$

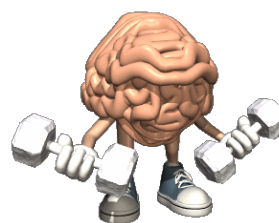
$$ax + b = cx + d; a(bx + c) = d(ex + f); a(x + b) = c; ax = b + cx$$

concretely, pictorially and symbolically, where $a, b, c, d, e,$ and f are rational numbers

EXTENSION to unit: Solving equations with fraction in them

Student Friendly: "Rearranging an equation to get all the variables by themselves". Taking care of a fraction.

Warm Up



$$1) 10 - 2x = 85 + 3x$$

$$x = -15$$

$$2) \frac{-1x + 5}{5} = \frac{9}{2}$$

$$x = \frac{5}{2}$$

$$3) \frac{1}{3} (9x + 3) = \frac{3}{2} (20x - 8)$$

$$x = \frac{13}{27}$$

$$4) \frac{5x - 2}{6} = \frac{3}{4} - 3x$$

$$x = \frac{33}{46}$$

$$1) \quad 10 - 2x = 85 + 3x$$

~~+2x~~
+2x

$$10 = \cancel{85} + 5x$$

~~-85~~ ~~-85~~

$$\frac{-75}{5} = \frac{5x}{5}$$

$$-15 = x$$

$$2) \quad \frac{-1x + 5}{5} = \frac{9}{2}$$

(10) (10) (10)

$$\frac{-10x + 50}{5} = \frac{90}{2}$$

$$\cancel{-2x + 50} = 45^{-50}$$

$$\frac{-2x}{-2} = \frac{-5}{-2}$$

$$x = \frac{5}{2}$$

$$x = 2.5$$

$$\frac{1}{3} \left(\frac{9x}{1} + \frac{3}{1} \right) = \frac{3}{2} \left(\frac{20x}{1} - \frac{8}{1} \right)$$

$$\frac{9x}{3} + \frac{3}{3} = \frac{60x}{2} - \frac{24}{2}$$

$$\boxed{3x} + 1 = \boxed{30x} - 12$$

$$1 = 27x - 12$$

$$\frac{13}{27} = \frac{27x}{27}$$

$$\frac{13}{27} = x$$

Some More!!!!!!!



$$4) \frac{5x - 2}{6} = \frac{3}{4} - 3x$$

(12) (12) (12) (12)

$$\frac{60x - 24}{6} = \frac{36}{4} - 36x$$

$$\boxed{10x - 24} + 36x = \boxed{-36x} + 24$$

$$\frac{\cancel{46}x}{\cancel{46}} = \frac{33}{\cancel{46}} \quad x = \frac{33}{46}$$

Class/Homework



6,8,10 Page 281 - 283

Today

- #11(ace)
- #16 (aii)
- #17(bd)
- #18
- 19(cd)
- #21(bc)

Tomorrow

- #11(b,d)
- #16 (ai)
- #17(ac)
- 19(a,b)
- #21(a,b)

When you see fractions you must work with fractions

Class/Homework



Class work and homework

Mid-Unit Review

page 286

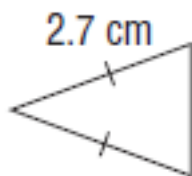
Questions: 3,4,5, 7, 8,

Worksheet questions

1, 5, 13, 17, 19, 21, 23, 25, 27

3. Sheila is charged a fare of \$27.70 for a cab ride to her friend's house. The fare is calculated using a flat fee of \$2.50, plus \$1.20 per kilometre. What distance did Sheila travel?
- Let k kilometres represent the distance travelled. Write an equation to solve the problem. Solve the problem.
 - Verify the solution.

4. An isosceles triangle has two equal sides of length 2.7 cm and perimeter 7.3 cm.



- Write an equation that can be used to determine the length of the third side.
- Solve the equation.
- Verify the solution.

Math 9

Name _____

Variables Both Sides

Per/Sec. _____ Date _____

Solve.

1) $4y - 10 = 3y$

2) $5 - 3w = 2w$

3) $4p + 2 = 11p$

4) $5x - 3 = -x$

5) $7r - 5 = 2r + 5$

6) $4a + 2 = 6a - 12$

7) $7m + 15 = 3m + 3$

8) $9r + 4 = 7r + 4$

9) $4x - 1 = 6x + 2$

10) $3a - 7 = a + 8$

11) $3z + 15 = 6z - 13$

12) $7w - 6 = 6w - 7$

13) $4f + 5 - 2f = 3f$

14) $6u + 7 - 3u = 8 + 5u - 11$

15) $5p + 2 - 3p = 8 + 4p - 6$

16) $9y - 1 - 7y = 7 - 6y - 15$

17) $9 + 6a - 14 = 8 - a - 6 + 4a$

18) $4(y + 8) = 7(y + 2)$

19) $4(2a - 2) = -2(1 - 5a)$

20) $6(4 - 3j) = -2(3j - 5)$

21) $3(g - 5) + 8g = 18 - (3 - 10g)$

22) $18 - (2a - 5) - 2(a + 2) = 3a + 5$

23) $\frac{1}{3}(6 - 15w) = \frac{3}{8}(40w - 8)$

24) $\frac{2}{3}(6x + 9) = \frac{1}{2}(10x - 2)$

25) $-\frac{5}{6}(30 + 18k) = \frac{2}{3}(45 - 15k)$

26) $10 - \frac{5}{8}h = \frac{3}{8}h - 6$

27) $\frac{3}{10}y = 19 - \frac{1}{5}y$

28) $4 - \frac{2}{3}m = \frac{1}{2}m$

29) $\frac{2(5p - 1)}{3} = 3p + 1$

30) $\frac{7(15 - 3c)}{8} = -5c + 6$

31) $12c + 2.6 = 6.8c$

32) $0.7d - 512 = 0.5d + 288$

33) $0.3n + 0.4 = 0.6n + 0.7 - 0.5n$

34) $0.4(4k - 0.9) = 0.1(k + 0.9)$

5. Solve each equation. Verify the solution.

a) $\frac{k}{3} = -1.5$

b) $10.5 = 3b - 12.5$

c) $5(x - 7.2) = 14.5$

d) $8.4 = 1.2b$

e) $2 + \frac{n}{3} = 2.8$

f) $-8 = 0.4(3.2 + h)$

7. Solve each equation. Verify the solution.

a) $\frac{56}{a} = -3.5, a \neq 0$

b) $8w - 12.8 = 6w$

c) $-8z + 11 = -10 - 5.5z$

d) $\frac{5x}{2} = 11 + \frac{2x}{3}$

e) $0.2(5 - 2r) = 0.3(1 - r)$

f) $12.9 + 2.3y = 4.5y + 19.5$

g) $\frac{2}{5}(m + 4) = \frac{1}{5}(3m + 9)$

8. Skateboards can be rented from two shops in a park

Shop Y charges \$15 plus \$3 per hour

Shop Z charges \$12 plus \$4 per hour

Determine the time in hours for which the rental charges in both shops are equal.

- Write an equation to determine the time.
- Solve the equation.
- Verify the solution.

Class/Homework

Worksheet



Solve for the variable



Variables on each side



Distribute



Attachments

Equations01.pdf

Equations03.pdf

Equations02.pdf