

1. Solve the following equation $-2(2a + 7) + 2 = -6a$.

$a = 6$

$$\begin{aligned} -4a - 14 + 2 &= -6a \\ -4a - 12 &= -6a \\ +6a &+6a \\ 2a - 12 &= 0 \end{aligned}$$

$$\begin{aligned} 2a - 12 &= 0 \\ +12 &+12 \\ \hline 2a &= 12 \\ \frac{2a}{2} &= \frac{12}{2} \end{aligned}$$

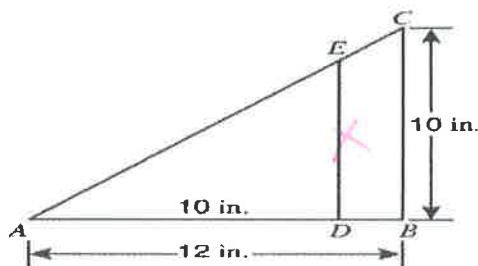
2. The RHS Art Magnet was ordering art supplies that they would need this year in class. Each student ordered a 6 inch paint brushes that cost \$2.75 and a paint tray that cost \$1.50. If x represents the number of students in the art magnet, which equation can be used to find y , the total amount of money that the magnet spent on art supplies?

- A. $y = 2.75 + x + 1.50$
B. $y = 4.25 + x$

- C. $y = x + 2.75$
D. $y = 4.25x$

$$\begin{aligned} y &= 2.75x + 1.50x \\ y &= 4.25x \end{aligned}$$

3. The triangles are similar. Approximate length of DE.



	ADE	ABC
W	10	12
height	x	10
base	10	12

$$\begin{aligned} 12x &= 100 \\ 12 &12 \\ \hline x &= 8.33 \text{ in} \end{aligned}$$

4. Write the following expression in simplest form: $4(x + 2) - (2x - 1) + 10$.

$$\begin{aligned} 4x + 8 - 2x + 1 + 10 \\ 2x + 19 \end{aligned}$$

5. At DFW Airport, 8 planes land every 6 minutes. At Love Field airport 5 planes land every 12 minutes. How many more planes land in an hour at DFW airport than at Love Field airport?

DFW:

W	O	N
planes	8	x
minutes	6	60

80 planes per hour

LoveField:

W	O	N
planes	5	x
min	12	60

25 planes per hour

$$\begin{aligned} 80 - 25 &= \\ 55 \text{ more planes} \end{aligned}$$

6. Solve the following for x and graph the solution on the number line below.

divided by a negative - FLIP!

$$\begin{aligned} \frac{-12}{-4} &\geq \frac{-4x}{-4} \\ 3 &\leq x \\ x &\geq 3 \end{aligned}$$

7. Mrs. Himler solved the following equation using the steps shown below. What operation did she perform to get from Step 2 to Step 3?

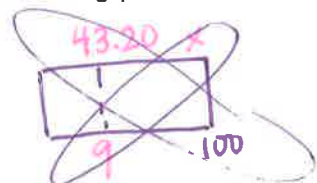
Step 1	$2(x + 5) = x - 1$
Step 2	$2x + 10 = x - 1$
Step 3	$x + 10 = -1$
Step 4	$x = -11$

Subtracted x from both sides

8. Which situation best represents the expression $3x + 12$?

- ☒ A. The amount of money Alberto earns if he mows 3 yards at \$12 each and weeds x flower beds.
☒ B. The total bill for 3 people to eat dinner if each meal costs \$12.
☒ C. Jose bought 3 shirts at x dollars each and a pair of sunglasses for \$12.
☒ D. The number of tickets purchased for \$12 each in the first 3 rows if they buy x number of seats.

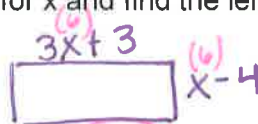
9. Alexandria paid 9% tax on a new iPhone 5. She paid \$43.20 in taxes. What was the selling price of her new phone? *tax = part*



$$\frac{4320}{9} = \frac{9x}{9}$$

\$480

10. The perimeter of a rectangle is 46 cm. The length is $(3x+3)$ and the width is $(x-4)$. Solve for x and find the length of each side.



$$2(3x+3) + 2(x-4) = 46$$

$$6x + 6 + 2x - 8 = 46$$

$$8x - 2 = 46$$

$$\frac{8x}{8} = \frac{48}{8}$$

$$x = 6$$

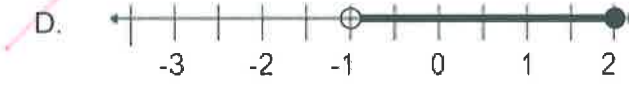
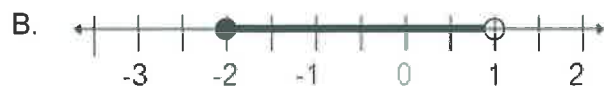
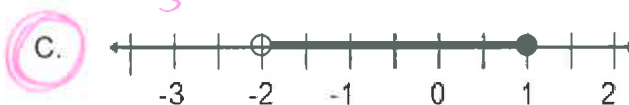
Length: 21cm
width: 2cm

11. Which number line below matches the inequality $-1 \leq -3x + 2 < 8$?

$$1 \geq x > -2$$

$$\begin{array}{r} -2 \\ -3x + 2 < 8 \\ -3x < 6 \\ x > -2 \end{array}$$

FLIP all signs



Name three solutions to the inequality in #11: -1, 0, 1

(what numbers make the inequality TRUE?)

12. Anna helps her grandmother at the Farmer's Market. A mixed variety of apples are sold in crates of 20. In each crate of 20, there are usually 3 Granny Smith apples. If Anna sells 15 crates of apples, how many Granny Smith apples did she sell? What percent of the total apples Anna sold were 100 Granny Smith?

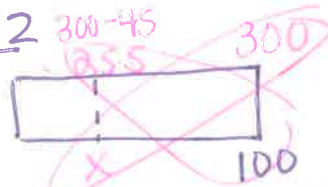
PART 1

	W	D	N
Granny Smith	3	x	
Total	20	300	

$$900 = 20x$$

45 granny smith

PART 2



$$25500 = 300x$$

85%

13. Solve the equation $\frac{-2x+3}{5} > 3$ for x.

$$\begin{array}{r} 5 \cdot \frac{-2x+3}{5} > 3 \cdot 5 \\ -2x+3 > 15 \\ -3 \quad -3 \\ -2x > 12 \\ -2 \quad -2 \\ x < -6 \end{array}$$

FLIP

14. Write an equation to find the measure of two complementary angles when the measure of one angle is nine less than twice the other?

$$\begin{array}{l} x \\ 2x-9 \end{array} \quad x + 2x - 9 = 90$$

$$3x - 9 = 90$$

in between 90 & 180

15. If an obtuse angle is $(4x - 10)^\circ$, which of the following could be values of x?

A. $x = 12$

B. $x = 25$

C. $x = 35$

D. $x = 50$

$$\begin{array}{r} 90 < 4x - 10 < 180 \\ +10 \quad +10 \quad +10 \\ 100 < 4x < 190 \\ \frac{100}{4} < \frac{4x}{4} < \frac{190}{4} \end{array}$$

16. Solve the following for z: $2z - 3y = 10$

$$\begin{array}{r} +3y \quad +3y \\ 2z = 10 + 3y \\ \frac{2z}{2} = \frac{10 + 3y}{2} \\ z = \frac{10 + 3y}{2} \end{array}$$

17. Oscar buys a shirt for x dollars. The tax on the shirt is 8.25%. Which of the following expressions represents the price Oscar will pay when checking out?

A. $x + 8.25x$

B. $x + 0.0825x$

C. $x + 0.0825$

D. $x + 8.25$

price + tax

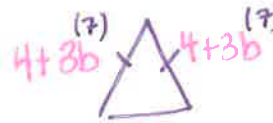
$$8.25\% = .0825$$

18. Given the equation $5x - 4y = 10$ what is the value of x when $y = 2$.

$$\begin{array}{r} 5x - 4(2) = 10 \\ 5x - 8 = 10 \\ +8 \quad +8 \\ 5x = 18 \\ \frac{5x}{5} = \frac{18}{5} \end{array}$$

$$x = 3.6 \text{ or } \frac{18}{5}$$

19. The length of each leg of an isosceles triangle is 4 more than three times the length of the base. The perimeter of the triangle is 57 inches. Find the length of each side of the triangle.



base: 7 in
legs: 25 in

$$\begin{array}{r} 2(4+3b) + b = 57 \\ 8 + 6b + b = 57 \\ 8 + 7b = 57 \\ -8 \quad -8 \\ 7b = 49 \\ b = 7 \end{array}$$

20. The ratio of boys to girls in Mrs. Breckling's math class is 8:7. If Mrs. Breckling has a total of 90 students, predict how many students will be boys. PART TO WHOLE

	W	O	N
boys	8	7	
total	15	90	

$$\frac{7 \cdot 20 = 15x}{15 \quad 15}$$

48 boys

21. In which step does a mistake first appear in simplifying the expression $0.5(-12c + 6) - 3(c + 4) + 10(c - 5)$?

Step 1: $-6c + 3 - 3(c + 4) + 10(c - 5)$

Step 2: $-6c + 3 - 3c - 12 + 10(c - 5)$

Step 3: $-6c + 3 - 3c - 12 + 10c - 50$

Step 4: $7c - 41$

A. Step 1

B. Step 2

C. Step 3

D. Step 4

combining like terms