

10. Rearrange into the slope intercept form of the equation: $\text{slope/intercept} = y = mx + b$

i) $4x + 5y = -20$
 $5y = -4x - 20$
 $y = -\frac{4}{5}x - 4$

ii) $-3y + 18 = -15x$
 $-3y = -15x - 18$
 $y = 5x + 6$

iii) $2x - 3y = 12$
 $-3y = -2x + 12$
 $y = \frac{2}{3}x - 4$

Word problems:

11. A DJ charges \$200 plus \$50/hr. Write an equation to represent his billing structure.
 How much would a 6 hour dance cost?
 If the bill came to \$1200, how long would the DJ play?

$C = 50h + 200$
 $1200 = 50h + 200$
 $1000 = 50h$
 $20 = h$

$C = 50h + 200$
\$500.00
20 hours.

12. A famous photographer is offering classes. He charges a flat fee and so much an hour. For a 6 hour class the cost is \$250. For a 9 hour class the bill comes to \$295.

find his hourly rate
 find the flat fee charged
 write an equation to represent the cost of the class
 if the class lasted for 11 hours what is the cost?
 if the cost was \$530, how many hours was the class

\$15/h.
\$160.
$C = 15h + 160$
\$325.00
24.6 hours

Systems of Equations

(A) Comparison method

$y = -2x - 11$
 $y = 5x + 3$

$x = -2y + 10$
 $x = y + 1$

$x = x$
 $-2y + 10 = y + 1$
 $-2y - y = -9 + 1$
 $-3y = -8$
 $y = \frac{8}{3}$

Company P charges \$85 + \$15/h
 Company Q charges \$100 + 12/h
 At what price and how many hours is the bill the same from both companies?

$P = Q$
 $85 + 15h = 100 + 12h$
 $15h - 12h = 100 - 85$
 $3h = 15$
 $h = 5$

(B) Addition / Subtraction Method

$3x + 7y = 36$
 $7x - 4y = 14$

$2x + y = 5$
 $2x - 3y = -2$

$2x + 2y = 10$
 $2x + 3y = -2$

$3x + 5y = -3$
 $3x - 2y = -14$

$-6x + 4y = 28$
 $-6x + 4y = 28$

$19y = 19$
 $y = 1$
 $2x + 5(1) = -3$
 $2x + 5 = -3$
 $2x = -8$
 $x = -4$

Carefully read each of the following and determine the correct solutions:

- The sum of three consecutive numbers is 249. What are the three numbers? $82, 83, 84$
- Kendra and Keith each share a lottery prize based on how much they contributed to the ticket price. Kendra receives 3 times as much as Keith. The total prize came to \$3280. How much did each person receive? $\text{Keith } \$820, \text{ Kendra } \2460
- A skating rink is 2 metres longer than the width. The perimeter is 76 metres. What are the dimensions (length and width) of the rink? $\text{width } 18, \text{ length } 20$
- Louise, Michelle and Penny worked a total of 38 hours raking leaves. Louise worked twice as long as Michelle and Michelle worked 2 hours more than Penny. How long did each of them work? $\text{Penny } 8\text{h}; \text{ Michelle } 10\text{ hours}; \text{ Louise } 20\text{h}$
- A rink is 10m longer than it is wide. The sum of the squares of the 2 sides is 628 m^2 . What are the dimensions of the rink?
- The sum of Tanya's age and Rob's age is 36 years. Tanya is 4 years younger than Rob. How old are Rob and Tanya?
- Marie paid for her \$2.50 admission ticket with 13 dimes and quarters. How many of each did she have?
- Angie is 8 years older than her cousin, Tony. In 3 years, she will be double his age. How old is Angie today? How old is Tony?

(1) x
 $x+1$
 $x+2$
 $3x+3 = 249$
 $3x = 246$
 $x = 82$

(2)

Kendra	3x	2460
Keith	x	820

 $4x = 3280$
 $x = 820$

(3)

(x+2)	width
x	length

 $4x + 4 = 76$
 $4x = 72$
 $x = 18$
 width 18; length 20

(4)

Louise	2x+4	20
Michelle	x+2	10
Penny	x	8

 $4x + 6 = 38$
 $4x = 32$
 $x = 8$

(5)

(x+10)	length = 22
x	width = 12

 $x^2 + (x+10)^2 = 628$
 $x^2 + 2x^2 + 20x + 100 = 628$
 $2x^2 + 20x - 528 = 0$
 $2(x^2 + 10x - 264) = 0$
 $2(x + 22)(x - 12) = 0$
 $(x = -22) \text{ OR } x = 12$
 $x = 12$
 inadmissible

(6) $T + R = 36 \rightarrow T + R = 36$
 $R - T = 4 \rightarrow -T + R = 4$
 $2R = 40$
 $R = 20$
 $T = 16$
 Rob is 20
 Tanya is 16

(7)

dimes	10	(3-x)	5 dimes
quarters	25	x	8 quarters

 $10(13-x) + 25x = 250$
 $130 - 10x + 25x = 250$
 $130 + 15x = 250$
 $15x = 120$
 $x = 8$

(8)

Angie	x+8	x+11	Angie is 13
Tony	x	x+3	Tony is 5

 in 3 years $\rightarrow 1A = 2T$
 $(x+11) = 2(x+3)$
 $x+11 = 2x+6$
 $x-2x = -11+6$
 $-x = -5$
 $x = 5$