INTRODUCTION TO ALGEBRA

Form 1 Summer Course

Vol 1 - CH2

Part 5 - Formula

1. (a) $D = y^2 - x^2$

   (b) $D = 8^2 - 4^2 = 48$

2. $3x + 2y - 10$

3. $36 - 2p$

4. $a + 6b + 1$

5. $\$5x$

6. (a) $P = 10x^2 + 15y^2$

   (b) $P = 10(4)^2 + 15(5)^2 = 535$

7. (a) p, $p+1$, $p+2$

   (b) $4p + 6$

8. $11x + 1$

LINEAR EQUATIONS IN ONE UNKNOWN

Form 1 Summer Course
Vol 1 – CH3

Part 1 – Addition and Subtraction

(a) $x+3=7$
$x=7-3$
$x=4$

(c) $x+5=5$
$x=5-5$
$x=0$

(e) $x+1+1+1=7$
$x=7-1-1-1$
$x=4$

(g) $-3-x=-1$
$-x=-1+3$
$-x=2$
$x=-2$

(i) $8-(+x)=-5$
$8-x=-5$
$-x=-5-8$
$-x=-13$
$x=13$

(k) $3-(x+1)=-2$
$-(x+1)=-2-3$
$-(x+1)=-5$
$x+1=5$
$x=5-1$
$x=4$

(m) $2-(x+3)=-1$
$-(x+3)=-1-2$
$-(x+3)=-3$
$x+3=3$
$x=3-3$
$x=0$

Part 2 - Multiplication and Division

(b) $-2x = 4$

$x = -2$

(d) $\frac{x}{-4} = 3$

$x = -12$

(f) $\frac{x}{-2} = 6$

$x = -12$

(h) $\frac{1}{2}x = 24$

$x = 48$

(j) $\frac{-x}{-3} = -6$

$x = -18$

(l) $-\frac{2x}{5} = \frac{22}{75}$

$x = \frac{22}{75} \times \left(-\frac{5}{2}\right)$

$x = -\frac{11}{15}$

(n) $-\frac{9}{8p} = \frac{1}{32}$

$-9 \times 32 = 8p$

$p = \frac{-9 \times 32}{8}$

$p = -36$

Part 3 - Mixed Type

1. (b) $2x-5=13$

$2x=18$

$x=9$

(d) $5x-12=18$

$5x=30$

$x=6$

(f) $9n-22=5$

$9n=27$

$n=3$

(h) $24-2w=10$

$-2w=-14$

$w=7$

(j) $23-15y=-28$

$-15y=-51$

$y=\frac{17}{5}$

(l) $0.6-0.2y=1$

$-0.2y=0.4$

$y=-2$

2. (b) $1+\frac{x}{6}=8$

$\frac{x}{6}=7$

$x=42$

(d) $\frac{2x}{3}-1=23$

$\frac{2x}{3}=24$

$x=24\times\frac{3}{2}$

$x=36$

(f) $\frac{2x}{5}-2=3$

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

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

$x=\frac{25}{2}$

(h) $\frac{1}{2}x-\frac{5}{3}=1$

$\frac{1}{2}x=\frac{8}{3}$

$x=\frac{16}{3}$

(j) $10-\frac{3x}{5}=1$

$-\frac{3x}{5}=-9$

$x=-9\times-\frac{5}{3}$

$x=15$

(l) $7-\frac{6c}{7}=-5$

$-\frac{6c}{7}=-12$

$c=-12\times-\frac{7}{6}$

$c=14$

3. (b) $\frac{15-s}{3}=4$

$15-s=12$

$s=3$

(d) $\frac{7x+1}{2}=10$

$7x+1=20$

$7x=19$

$x=\frac{19}{7}$

(f) $\frac{11k+21}{9}=6$

$11k+21=54$

$11k=33$

$k=3$

(h) $\frac{9b-1}{7}=-4$

$9b-1=-28$

$9b=-27$

$b=-3$

(j) $5+\frac{Z-4}{2}=4$

$\frac{Z-4}{2}=-1$

$Z-4=-2$

$Z=2$

4. (b) $\frac{2(3y-14)}{5}=14$

$3y-14=14\times\frac{5}{2}$

$3y-14=35$

$3y=49$

$y=\frac{49}{3}$

(d) $\frac{3(4m-15)}{11}=15$

$4m-15=15\times\frac{11}{3}$

$4m-15=55$

$4m=70$

$m=\frac{35}{2}$

(f) $\frac{3(2x-15)}{7}=9$

$2x-15=9\times\frac{7}{3}$

$2x-15=21$

$2x=36$

$x=18$

(h) $\frac{-5(x-3)}{4}=\frac{15}{2}$

$x-3=\frac{15}{2}\times-\frac{4}{5}$

$x-3=-6$

$x=-3$

(j) $\dfrac{-(3r+1)}{5} = \dfrac{1}{3}$

$-3(3r+1) = 5$

$-9r - 3 = 5$

$-9r = 8$

$r = -\dfrac{8}{9}$