FORM 3
CHAPTER 9

Summative Practice

Section A

1 $\left(\frac{x}{3}-\frac{3y}{5}=1\right)\times 15$

$5x-9y=15$

$9y=5x-15$

$y=\frac{5}{9}x-\frac{15}{9}$

Gradient $=\frac{5}{9}$

Answer: **A**

2 $9x+6y=k$

$6y=-9x+k$

$y=-\frac{3}{2}x+\frac{1}{6}k$

$\therefore c=\frac{1}{6}k$

Given $c=\frac{3}{2}$,

$\frac{1}{6}k=\frac{3}{2}$

$k=9$

Answer: **D**

3 $4x+5y=20$

A: $4(5)+5(0)=20$

B: $4(-10)+5(-4)=-60\neq 20$

Answer: **B**

4 $\frac{x}{4}+\frac{y}{(-2)}=1$

$\frac{x}{4}-\frac{y}{2}=1$

Multiply with 4,

$x-2y=4$

Answer: **C**

5 $m=\frac{-8-6}{4-0}=-\frac{7}{2}$

$y=-\frac{7}{2}x+6$

$2y-12=-7x$

$2y+7x=12$

Answer: **D**

6 $8y-6x=9$

$8y=6x+9$

$y=\frac{3}{4}x+\frac{9}{8}$

$\therefore m=\frac{3}{4}$

$y=\frac{3}{4}x+c$, when $x=8$ and $y=5$

$5=\frac{3}{4}(8)+c$

$c=-1$

$y=\frac{3}{4}x-1$

$\therefore 3x-4y=4$

Answer: **B**

7 Answer: **B**

8 $\frac{y}{2p}-x=9$

$y-2px=18p$

$y=2px+18p$

$m_1=2p$

$y=(10-3p)x-4$

$m_2=10-3p$

$m_1=m_2$

$2p=10-3p$

$5p=10$

$p=2$

Answer: **B**

9 $y=-3$ ..... ①

$5x-3y=14$..... ②

Substitute ① into ②:

$5x-3(-3)=14$

$5x=14-9$

$5x=5$

$x=1$

$\therefore$ The point of intersection is $(1,-3)$.

Answer: **C**

10 $y-2=3x$

$y=3x+2$ ..... ①

$y=-5x+18$..... ②

Substitute ① into ②:

$3x+2=-5x+18$

$8x=16$

$x=2$

Substitute $x=2$ into ②:

$y=-5(2)+18$

$=8$

$\therefore$ The point of intersection is $(2, 8)$.

Answer: **C**

Section B

1 (a) $9x+3y=8$

$3y=-9x+8$

$y=-3x+\frac{8}{3}$

Gradient $=-3$

(b) x-intercept when $y=0$.

$9x+3(0)=8$

$9x=8$

$x=\frac{8}{9}$

(c) $(-2, k)\ x=-2,\ y=k$

$9(-2)+3k=8$

$-18+3k=8$

$3k=8+18$

$k=8\frac{2}{3}$

(d) $(h, 3)\ x=h,\ y=3$

$9h+3(3)=8$

$9h=8-9$

$h=-\frac{1}{9}$

2 $y = \frac{1}{2}x + 3$; Gradient, $m = \frac{1}{2}$

$2x + 4y = 7$

$m = -\frac{1}{2}$

$6y - 3x + 5 = 0$

$m = \frac{1}{2}$ ✓

$\frac{4x}{3} = \frac{8y}{3} + 1$

$m = \frac{1}{2}$ ✓

$\frac{x}{12} - \frac{y}{12} = 1$

$m = 1$

$x - 2y = 11$

$m = \frac{1}{2}$ ✓

$10y = 5x - 8$

$m = \frac{1}{2}$ ✓

Section C

1 (a) Gradient of $OD = \frac{6-0}{4-0} = \frac{3}{2}$

Equation of COD: $y = \frac{3}{2}x$

(b) $-\frac{k}{6} = \frac{3}{2}$

$k = \frac{3}{2}(-6)$

$= -9$

(c) Equation of EF: $y = \frac{3}{2}x - 9$

(d) Substitute $m = \frac{3}{2}$, $x = -2$ and $y = 3$ into $y = mx + c$.

$3 = \frac{3}{2}(-2) + c$

$c = 3 + 3 = 6$

Equation of AB: $y = \frac{3}{2}x + 6$

(e) $y = \frac{3}{2}x + 6$

Substitute $x = 0$,

$\therefore$ y-intercept is 6.

Substitute $y = 0$,

$\frac{3}{2}x = -6$

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

$= -4$

$\therefore$ x-intercept is -4.