

ANSWER KEY

CONCEPTS/SKILLS REVIEW FROM GR. 9

#1.

$$\begin{aligned} \text{a) } & \frac{-25}{5} - (-2) [-3^2 - 2] \\ & = -5 + 2(-9 - 2) \\ & = -5 - 18 - 4 \\ & = -27 \end{aligned}$$

$$\begin{aligned} \text{b) } & -3 - 2(-3 - 4) \\ & = -3 - 2(-7) \\ & = -3 + 14 \\ & = 11 \end{aligned}$$

$$\begin{aligned} \text{c) } & (-6)(-3) - 4(-2) \\ & = 18 + 8 \\ & = 26 \end{aligned}$$

$$\begin{aligned} \text{d) } & -3 - 2 [15 \div (-5) - (-2)] \\ & = -3 - 2[-3 + 2] \\ & = -3 - 2(-1) \\ & = -3 + 2 \\ & = -1 \end{aligned}$$

$$\begin{aligned} \text{e) } & -2^2 - 2(-3)(-4) \\ & = -4 + 6(-4) \\ & = -4 - 24 \\ & = -28 \end{aligned}$$

$$\begin{aligned} \text{f) } & 6(-1) [-4 + 2]^2 \\ & = -6(-2)^2 \\ & = -6(4) \\ & = -24 \end{aligned}$$

$$\begin{aligned} \text{g) } & (-2)^2 - (-12) [-3 - 2(-1)] \\ & = 4 + 12(-3 + 2) \\ & = 4 + 12(-1) \\ & = 4 - 12 \\ & = -8 \end{aligned}$$

$$\begin{aligned} \text{h) } & -2(-3) - 4(-2) [-2^2 - 2] \\ & = 6 + 8(-4 - 2) \\ & = 6 + 8(-6) \\ & = 6 - 48 \\ & = -42 \end{aligned}$$

* Recall: you must have the same denominator when adding or subtracting FRACTIONS !!

#2 a) $\frac{1 \times 2}{5 \times 2} + \frac{1 \times 5}{2 \times 5}$
 $= \frac{2}{10} + \frac{5}{10}$
 $= \frac{7}{10}$

b) $\frac{2 \times 4}{3 \times 4} + \frac{1 \times 3}{4 \times 3}$
 $= \frac{8}{12} + \frac{3}{12}$
 $= \frac{11}{12}$

c) $\frac{3+1}{2 \cdot 4}$
 $= \frac{6+1}{4 \cdot 4}$
 $= \frac{7}{4}$

d) $\frac{1-1}{5 \cdot 10}$
 $= \frac{2-1}{10 \cdot 10}$
 $= \frac{1}{10}$

e) $\frac{3-5}{2 \cdot 7}$
 $= \frac{21-10}{14 \cdot 14}$
 $= \frac{11}{14}$

#3 a) $\frac{1 \cdot 3}{2 \cdot 5}$
 $= \frac{3}{10}$

b) $\frac{3 \cdot 7}{4 \cdot 10}$
 $= \frac{21}{40}$

c) $\frac{3 \cdot 1}{1 \cdot 1}$
 $= \frac{9}{5}$

d) $\frac{5 \div 13}{8 \cdot 16}$
 $= \frac{5 \times 2}{8 \cdot 13}$
 $= \frac{10}{13}$

FLIP FRACTION and "x"
 Reduce Prior

e) $\frac{3 \div 4}{7 \cdot 5}$
 $= \frac{3 \times 5}{7 \cdot 4}$
 $= \frac{15}{28}$

f) $\frac{2 \div 3}{11 \cdot 5}$
 $= \frac{2 \times 5}{11 \cdot 3}$
 $= \frac{10}{33}$

g) $\frac{5 \div 10}{7 \cdot 1}$
 $= \frac{1 \times 1}{7 \cdot 2}$
 $= \frac{1}{14}$

EASIER TO Reduce FIRST

#4 $(2, -2)$
 $(5, 1)$

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$m = \frac{1 - (-2)}{5 - 2}$$

$$m = \frac{1 + 2}{3}$$

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

$$\boxed{m = 1}$$

b) $(4, -3)$
 $(-8, 7)$

$$m = \frac{7 - (-3)}{-8 - 4}$$

$$m = \frac{7 + 3}{-12}$$

$$m = \frac{10}{-12}$$

$$\boxed{m = -\frac{5}{6}}$$

c) $(-2, 6)$
 $(-8, -6)$

$$m = \frac{-6 - 6}{-8 - (-2)}$$

$$m = \frac{-12}{-8 + 2}$$

$$m = \frac{-12}{-6}$$

$$\boxed{m = 2}$$

#5 $m = 1$
 $b = ?$
 pt $(2, -2)$

$$y = mx + b$$

$$y = 1x + b$$

$$-2 = 1(2) + b$$

$$-2 = 2 + b$$

$$-4 = b$$

$$\boxed{\therefore y = 1x - 4}$$

b) $m = -\frac{5}{6}$
 $b = ?$

$$y = mx + b$$

$$y = -\frac{5}{6}x + b$$

pt $(4, -3)$

$$-3 = -\frac{5}{6}(4) + b$$

$$-3 = \frac{-20}{6} + b$$

$$b = \frac{-3 \times 6}{1 \times 6} = b$$

$$= \frac{-18}{6} + \frac{20}{6}$$

$$= \frac{2}{6}$$

$$= \frac{1}{3}$$

$$\boxed{\therefore y = -\frac{5}{6}x + \frac{1}{3}}$$

#5 c) $m=2$
 $b=?$
 pt $(-8, -6)$

$$y = mx + b$$

$$y = 2x + b$$

$$-6 = 2(-8) + b$$

$$-6 = -16 + b$$

$$10 = b$$

$\therefore y = 2x + 10$

#6 $m = \frac{6000}{100}$ $m = 60$ } use rise and run
 $b = 8000$ } from graph !!

$$y = mx + b$$

$$y = 60x + 8000$$

#7 a) $2x - 4y = 14$

$$\frac{-4y}{-4} = \frac{-2x + 14}{-4}$$

$$y = \frac{1}{2}x - \frac{14}{4}$$

$$y = \frac{1}{2}x - \frac{7}{2}$$

$\therefore m = \frac{1}{2}$
 $b = -\frac{7}{2}$
 $(0, -\frac{7}{2})$

b) $-4x + 2y = 12$

$$2y = 4x + 12$$

$$y = 2x + 6$$

$\therefore m = 2$
 $b = 6$ $(0, 6)$

c) $5x - 10 - 2y = 20$

$$-2y = -5x + 30$$

$$y = \frac{-5x + 30}{-2}$$

$$y = \frac{5x}{2} - 15$$

$\therefore m = \frac{5}{2}$
 $b = -15$
 $(0, -15)$

#7

$$\begin{aligned}
 a) \quad 8 - 10x &= 2y - 6 \\
 -2y &= 10x - 14 \\
 y &= \frac{10x - 14}{-2} \\
 y &= -5x + 7
 \end{aligned}$$

$$\begin{aligned}
 \therefore m &= -5 \\
 b &= 7 \quad (0, 7)
 \end{aligned}$$

#8

$$\begin{aligned}
 a) \quad m &= -5 \\
 b &= 6
 \end{aligned}$$

$$\therefore y = -5x + 6$$

$$\begin{aligned}
 b) \quad m &= 2 \\
 \text{pt } &(-5, 3)
 \end{aligned}$$

$$\begin{aligned}
 y &= mx + b \\
 y &= 2x + b \\
 3 &= 2(-5) + b \\
 3 &= -10 + b \\
 13 &= b
 \end{aligned}$$

$$\therefore y = 2x + 13$$

$$\begin{aligned}
 c) \quad m &= 2 \\
 \text{pt } &(4, -9)
 \end{aligned}$$

$$\begin{aligned}
 y &= mx + b \\
 y &= 2x + b \\
 -9 &= 2(4) + b \\
 -9 &= 8 + b \\
 -17 &= b
 \end{aligned}$$

$$\therefore y = 2x - 17$$

$$\begin{aligned}
 d) \quad (22, 9) \\
 (2, 11)
 \end{aligned}$$

$$\begin{aligned}
 m &= \frac{y_2 - y_1}{x_2 - x_1} \\
 m &= \frac{11 - 9}{2 - 22} \\
 m &= \frac{11 - 9}{-20}
 \end{aligned}$$

$$m = \frac{20}{-20}$$

$$m = -1$$

$$\begin{aligned}
 y &= mx + b \\
 y &= -1x + b \\
 11 &= -1(2) + b \\
 11 &= -2 + b \\
 13 &= b
 \end{aligned}$$

$$\therefore y = -1x + 13$$