

2

	Slope	General Form	Intercepts
a)	-3	$-3x - y + 14 = 0$	x - int: $\frac{14}{3}$ y - int: 14
b)	$\frac{1}{3}$	$x - 3y - 6 = 0$	x - int: 6 y - int: -2
c)	0	$y - 1 = 0$	y - int: 1
d)	$-\frac{5}{3}$	$-5x - 3y - 17 = 0$	x - int: $-\frac{17}{5}$ y - int: $-\frac{17}{3}$
e)	Undefined	$x - 2 = 0$	x - int: 2
f)	$-\frac{3}{2}$	$-3x - 2y - 11 = 0$	x - int: $-\frac{11}{3}$ y - int: $-\frac{11}{2}$

3.

	General Form	Symmetric Form	Slope & Intercepts
a)	$-x - 2y + 6 = 0$	$\frac{x}{6} + \frac{y}{3} = 1$	Slope: $-\frac{1}{2}$ y - int: 3 x - int: 6
b)	$2x - 10y - 14 = 0$	$\frac{x}{7} - \frac{5y}{7} = 1$	Slope: 0.2 y - int: -1.4 x - int: 7
c)	$2x - 3y + 8 = 0$	$-\frac{x}{4} + \frac{3y}{8} = 1$	Slope: $\frac{2}{3}$ y - int: $\frac{8}{3}$ x - int: -4
d)	$-4x - 10y - 1 = 0$	$\frac{x}{-\frac{1}{4}} + \frac{y}{-\frac{1}{10}} = 1$	Slope: -0.4 y - int: $-\frac{1}{10}$ x - int: $-\frac{1}{4}$
e)	$-x + 3y + 6 = 0$	$\frac{x}{6} - \frac{y}{2} = 1$	Slope: $\frac{1}{3}$ y - int: -2 x - int: 6
f)	$4x + 2y - 4 = 0$	$\frac{x}{2} + \frac{y}{4} = 1$	Slope: -2 y - int: 2 x - int: 4

4. a)  $3x - 2y - 13 = 0$   
 b)  $3x - y - 28 = 0$   
 c)  $x - 6 = 0$   
 d)  $x - y = 0$   
 e)  $y - 6 = 0$   
 f)  $4x - 2y - 21 = 0$

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5.

	Standard	General	Symmetric
a)	$y = 8x - 3$	$8x - y - 3 = 0$	$\frac{8x}{3} - \frac{y}{3} = 1$
b)	$y = -2x + 29$	$-2x - y + 29 = 0$	$\frac{2x}{29} + \frac{y}{29} = 1$
c)	$y = \frac{2}{5}x - 4$	$2x - 5y - 20 = 0$	$\frac{x}{10} - \frac{y}{4} = 1$
d)	$y = 2x + 6$	$2x - y + 6 = 0$	$-\frac{x}{3} + \frac{y}{6} = 1$
e)	$y = 4x - 8$	$4x - y - 8 = 0$	$\frac{x}{2} - \frac{y}{8} = 1$
f)	$y = -x - 3$	$-x - y - 3 = 0$	$-\frac{x}{3} - \frac{y}{3} = 1$

6. a) Lines 2 & 4  
 b) Lines 1 & 3  
 c) Lines 4 & 5  
 d) Line 2

10. Slope =  $-3$        $y$ -intercept =  $(0, 6)$        $x$ -intercept =  $(2, 0)$

a) 
$$\frac{k-5}{5-3} = \frac{-3}{1}$$

$$\frac{k-5}{2} = -3$$

$$k-5 = -6$$

$$k = -1$$

b) 
$$\frac{k-5}{5-3} = \frac{1}{3}$$

$$\frac{k-5}{2} = \frac{1}{3}$$

$$3(k-5) = 2$$

$$3k - 15 = 2$$

$$3k = 17$$

$$k = \frac{17}{3}$$

c) Using  $A(3, 5)$  &  $(0, 6)$ ,       $a = \frac{6-5}{0-3} = -\frac{1}{3}$ ,      so  $y = -\frac{1}{3}x + 6$

To find  $k$ , let  $x = 5$

$$y = -\frac{1}{3}(5) + 6$$

$$y = -\frac{5}{3} + 6$$

$$y = -\frac{5}{3} + \frac{18}{3}$$

$$y = k = \frac{13}{3}$$

d) Using  $(2, 0)$  &  $A(3, 5)$ ,  $a = \frac{5}{1}$  so  $y = 5x - 10$

Let  $x = 5$

$y = k = 15$

e) Using  $(1, 3)$  &  $A(3, 5)$ ,  $a = \frac{2}{2} = 1$  so  $y = x + 2$

Let  $x = 5$

$y = k = 7$

13.

$$\begin{array}{ll}
 \text{a) 1) } \overline{AC}: a = \frac{-1}{7} & \text{2) } \overline{AD}: a = \frac{1}{3} \\
 \text{3) } \overline{CE}: a = \frac{9}{7} & \text{4) } \overline{DE}: a = \frac{1}{3}
 \end{array}$$

A(0,0)  
 B  
 C(42,-6)  
 D(30,30)

$$\text{b) } \overline{DE} \perp \overline{DC} ? \quad \overline{DE}: a = \frac{1}{3} \quad \overline{DC}: a = -3 \quad \text{E}(84,48)$$

yes, slopes are negative reciprocals

$$\begin{aligned}
 \text{c) } d(C,D) &= \sqrt{36^2 + (-12)^2} = \sqrt{1440} \doteq 37.95 \\
 d(D,E) &= \sqrt{18^2 + 54^2} = \sqrt{3240} \doteq 56.92
 \end{aligned}$$

$$\text{Area} = \frac{\sqrt{1440} \cdot \sqrt{3240}}{2} = \frac{2160}{2} = 1080 \text{ cm}^2$$

$$\begin{aligned}
 \text{d) } \overline{DC}: a &= -3 \quad x = 30 \quad y = 30 \\
 30 &= -3(30) + b \\
 30 &= -90 + b \\
 120 &= b \quad \therefore y = -3x + 120
 \end{aligned}$$

$$\begin{aligned}
 \text{e) } x &= 20 \quad y = -3(20) + 120 \\
 & \quad y = -60 + 120 \\
 & \quad y = 60 \quad \therefore 60 \text{ cm}
 \end{aligned}$$

$$\begin{aligned}
 \text{f) } y &= -3x + b \quad x = 84 \quad y = 48 \\
 48 &= -3(84) + b \\
 48 &= -252 + b \\
 300 &= b \quad \therefore y = -3x + 300 \\
 \text{B: } 0 &= -3x + 300 \\
 -300 &= -3x \\
 100 &= x \quad \text{B}(100,0) \quad \therefore 100 \text{ cm}
 \end{aligned}$$