

PPP Solutions

1) $(x+7)^2 + (y+5)^2 = 12^2 \leftarrow \text{STANDARD}$

$$x^2 + 14x + 49 + y^2 + 10y + 25 = 144$$

$$x^2 + y^2 + 14x + 10y - 70 = 0 \leftarrow \text{GENERAL}$$

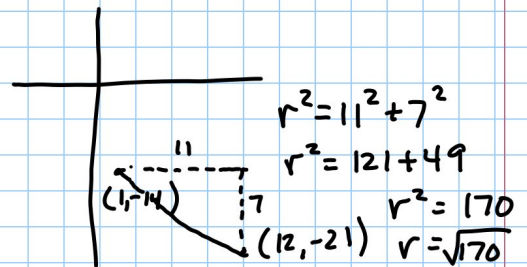
2) $x^2 + y^2 - 6x + 14y - 6 = 0$

$$x^2 - 6x + 9 + y^2 + 14y + 49 = 6 + 9 + 49$$

$$\left(\frac{-6}{2}\right)^2 = (-3)^2 = 9 \quad \left(\frac{14}{2}\right)^2 = 7^2 = 49$$

$$(x-3)^2 + (y+7)^2 = 64 \quad \leftarrow r^2$$

$$\boxed{\text{Center} = (3, -7), r = 8}$$



3) $(-10, -7)$ and $(12, -21)$

$$\text{center} = \left(\frac{-10+12}{2}, \frac{-7+(-21)}{2}\right) = \left(\frac{2}{2}, \frac{-28}{2}\right) = (1, -14)$$

$$(x-1)^2 + (y+14)^2 = \sqrt{170}^2$$

$$x^2 - 2x + 1 + y^2 + 28y + 196 = 170$$

$$\boxed{x^2 + y^2 - 2x + 28y + 27 = 0}$$

4) a) $\overline{B} \cup A = \{14, 28, 42, 49, 56, 63, 70\}$

$$\overline{B} = \{42, 49, 56, 63, 70\}$$

b) $\overline{A} \cap B = \{7, 21, 35\}$

$$\overline{A} = \{7, 21, 35, 49, 63, 70\}$$

c) $A \cup B = \{7, 14, 21, 28, 35, 42, 56\}$

5) $8 \cdot 10 \cdot 6 = \boxed{480}$

6) a) $\underline{10} \underline{10} \underline{10} \underline{10} \underline{10} \underline{10} \underline{10} \cdot \underline{26} \underline{26} = 6,760,000,000$

b) $\underline{10} \underline{9} \underline{8} \underline{7} \underline{6} \underline{5} \underline{4} \cdot \underline{26} \underline{26} = 408,844,800$

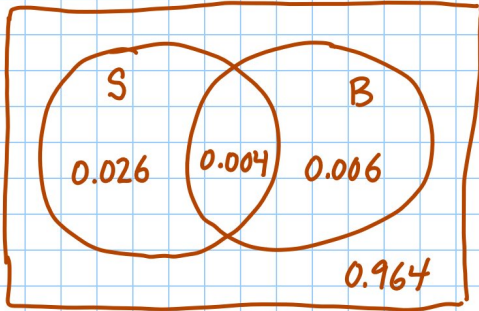
7) a) $18+2+30+35 = 85$

b) $2+30+35+40+68+71 = 246$

8) A) ${}_{75}P_5 = 2,071,126,800$

B) ${}_{75}C_5 = 17,259,390$

9) A)

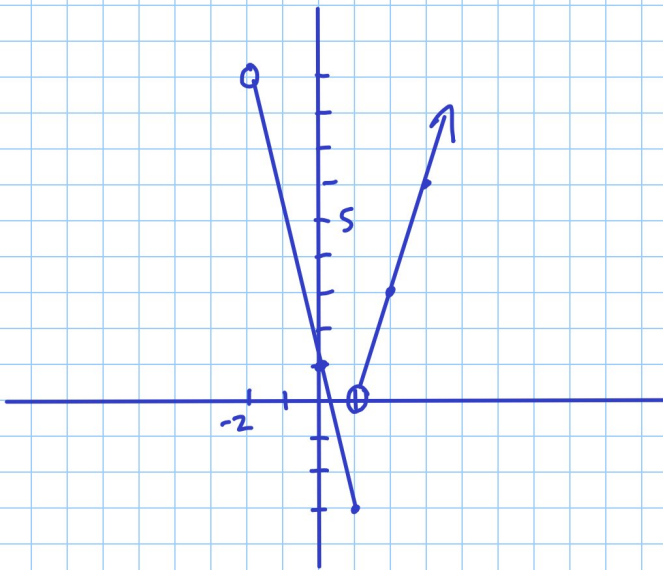


B) 96.4%

C) 3.6%

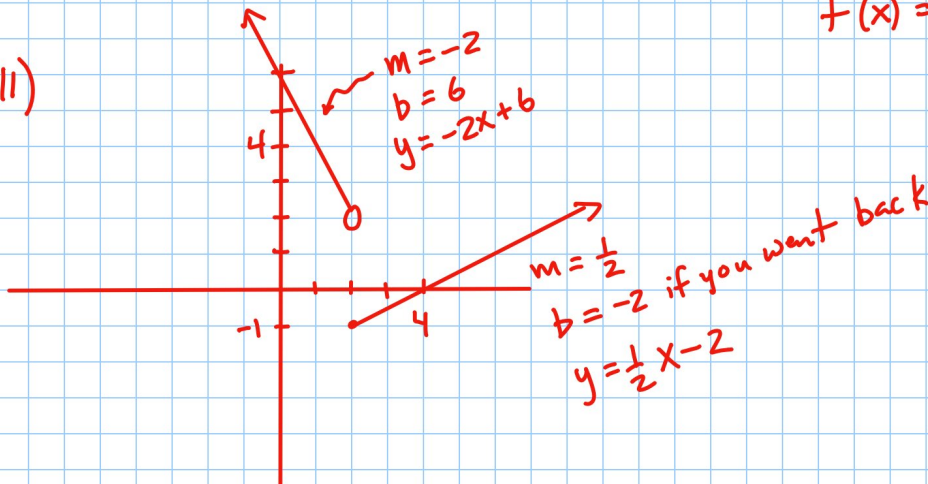
D) 3.2%

10) Graph $f(x) = \begin{cases} -4x+1 & -2 < x \leq 1 \\ 3x-3 & x > 1 \end{cases}$



x	y
-2	9 ← open
0	1
1	-3 ← closed
1	0 ← open
2	3
3	6

11)



$$f(x) = \begin{cases} -2x+6 & x < 2 \\ \frac{1}{2}x-2 & x \geq 2 \end{cases}$$