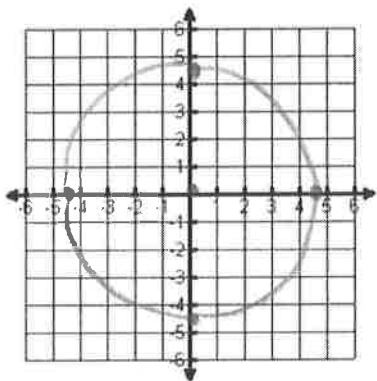


Graph the following circles. State the center and radius.

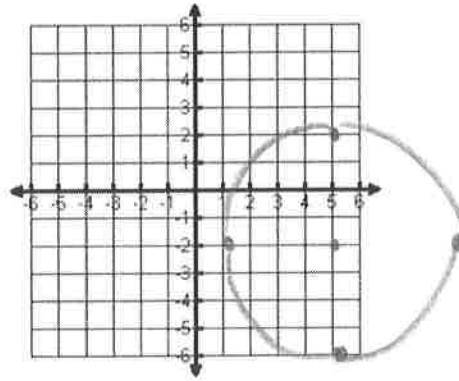
1) $x^2 + y^2 = 20$

Center: (0,0) & Radius: $\frac{\sqrt{20}}{2}$
 ≈ 4.5



2) $(x-5)^2 + (y+2)^2 = 16$

Center: (5,-2) & Radius: 4



Write the standard equation for the circle. State the center and radius.

3) $x^2 + y^2 - 14x + 4y - 11 = 0$

$(x-7)^2 + (y+2)^2 = 64$

C: (7,-2); r = 8

4) $x^2 + y^2 - 8x + 4y - 6 = 0$

$(x-4)^2 + (y+2)^2 = 26$

C: (4,-2); r = $\sqrt{26}$

5) A circular disk drive has a diameter with endpoints at (-9, 2) and (15, 12). Find the center and radius of the disk drive. Write the equation of the circle in standard form, then convert it to general form.

center or midpt = $(\frac{-9+15}{2}, \frac{2+12}{2}) = (3, 7)$

$d = \sqrt{(24)^2 + (10)^2} = \sqrt{676} = 26$

$r = \frac{26}{2} = 13$ $r^2 = 13^2 = 169$

$(x-3)^2 + (y-7)^2 = 169$

6) Find the point that partitions the line segment in a 1:1 ratio with endpoints (8, 4) and (-5, -7).

$\frac{1}{2}$

$x = 8 + \frac{1}{2}(-13) = 8 - 6.5$

$y = 4 + \frac{1}{2}(-11) = 4 - 5.5$

(1.5, -1.5)

7) Find the perimeter of the triangle with the vertices (-3, 2), (1, -5), and (5, 4).

A B C

$d_{AB} = \sqrt{(4)^2 + (-7)^2} = \sqrt{65}$

$d_{BC} = \sqrt{(4)^2 + (9)^2} = \sqrt{97}$

$d_{AC} = \sqrt{(8)^2 + (2)^2} = \sqrt{68}$

$\sqrt{65} + \sqrt{68} + \sqrt{97} \approx 26.2$

Change the following equations to general form of a circle, making sure it's in the correct order.

8) $(x-4)^2 + (y-1)^2 = 9$

$$x^2 - 8x + 16 + y^2 - 2y + 1 - 9 = 0$$

$$x^2 + y^2 - 8x - 2y + 7 = 0$$

9) $(x-3)^2 + (y+8)^2 = 25$

$$x^2 - 6x + 9 + y^2 + 16y + 64 - 25 = 0$$

$$x^2 + y^2 - 6x + 16y + 48 = 0$$

10) Find the equation of a line that is parallel to $y = -\frac{3}{2}x + 3$ and passes through $(-4, 5)$.

$$5 = (-\frac{3}{2})(-4) + b \quad \text{same}$$

$$5 = \frac{12}{2} + b$$

$$5 = 6 + b$$

$$b = 5 - 6$$

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

11) Find the equation of a line that is perpendicular to $y = \frac{1}{3}x - 7$ and passes through $(12, -6)$.

$$-6 = -\frac{3}{1}(12) + b \quad \text{opp. sign, flipped}$$

$$-6 = -36 + b$$

$$b = -6 + 36$$

$$y = -\frac{3}{1}x + 30$$

12) Circle C has a center of $(3, 4)$ and a radius of 5. Does the point $(0, 10)$ lie on circle C? Show your evidence (work).

$$(x-3)^2 + (y-4)^2 = 25$$

0 10

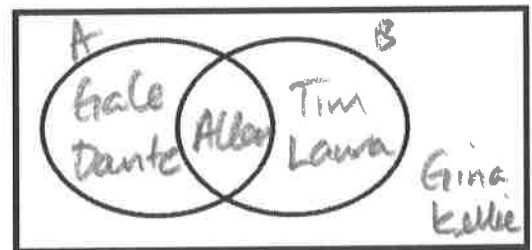
$$(-3)^2 + (6)^2 = 25$$

$$9 + 36 \neq 25$$

No, $(0, 10)$ doesn't lie on $\odot C$.

Probability Review: Venn Diagrams, Tables, & Words

- **Event A:** Gale, Allen, & Dante like scary movies
- **Event B:** Allen, Tim & Laura like comedy movies
- Gina & Kellie don't prefer either of those 2 types



13) List the **possible outcomes**, or *sample space* for $A \cup B$. $\{Gale, Dante, Allen, Tim, Laura\}$

14) List the **outcomes** for $A \cap B$. $\{Allen\}$

15) List the **outcomes** for A' . $\{Tim, Laura, Gina, Kellie\}$

16) Find $P(B)$ $\frac{3}{7}$

17) Find $P(\overline{A \cup B})$ $\frac{2}{7}$

18) Find $P(A \cap B)$ $\frac{1}{7}$

The table below represents a table about upperclassmen's suggestions for a class activity.

- 19) Find $P(11^{\text{th}})$ $\frac{14}{40} = \frac{7}{20}$
- 20) Find $P(\text{Dance})$ $\frac{17}{40}$
- 21) Find $P(10^{\text{th}} \cup \text{Dance})$ $\frac{14+17-2}{40} = \frac{29}{40}$
- 22) Find $P(\text{Field Trip} \cap 11^{\text{th}})$ $\frac{3}{40}$
- 23) Find $P(\overline{12^{\text{th}} \cap \text{Talent Show}})$ $\frac{32}{40} = \frac{14}{20}$
- 24) Find $P(10^{\text{th}} | \text{Field Trip})$ $\frac{8}{12} = \frac{2}{3}$
- 25) Find $P(\text{Talent Show} | 10^{\text{th}})$ $\frac{4}{14} = \frac{2}{7}$

	Talent Show	Field Trip	Dance
10 th	4	8	2
11 th	5	3	6
12 th	2	1	9

Mutually Exclusive vs Overlapping

26) Which of the following are mutually exclusive?

- ~~A.~~ Choosing a King or a Diamond in a deck of cards OL
- ~~B.~~ Choosing a band student or math student in a classroom OL
- ~~C.~~ Rolling 2 dice and getting an even sum or a sum less than 7 OL
- D. Choosing a Jack or a 5 in a deck of cards ME

Check for Independent Events

27) Which of the following pair of events are independent?

- A. $P(A) = 0.08$; $P(B) = 0.4$; $P(A \cap B) = 0.12$
- B. $P(A) = 0.30$; $P(B) = 0.15$; $P(A \cap B) = 0.045$
- C. $P(A) = 0.16$; $P(B) = 0.24$; $P(A \cap B) = 0.32$

$.30 \times .15 = .045$

28) Use the data in the table to decide if liking PE is independent of your gender. Tip: You can check either male or female

Using male $\frac{69}{100} \cdot \frac{50}{100} \neq \frac{38}{100}$

$\frac{3450}{10000} \neq \frac{38}{100}$

Dependent

	Do you like PE?	
	Yes	No
Male	38	12
Female	31	19

The sum of 2 dice

- 29) $P(\text{even sum or a sum} > 9)$ $\frac{18}{40} + \frac{6}{36} - \frac{4}{36} = \frac{5}{9}$
- 30) $(\text{sum} < 7 \text{ or a sum} > 10)$ $\frac{15}{36} + \frac{3}{36} = \frac{1}{2}$
- 31) $P(\text{odd sum or a sum} < 8)$ $\frac{18}{36} + \frac{21}{36} - \frac{12}{36} = \frac{3}{4}$

Calendar - A month is chosen from a year

- 32) Find the probability of choosing a month that begins with a vowel. $\frac{3}{12} = \frac{1}{4}$
- 33) Find the probability of choosing a month starting with the letter M or J. $\frac{5}{12}$
- 34) Find the probability of selecting a month that begins and ends with a consonant. $\frac{8}{12} = \frac{2}{3}$
- 35) Find the probability of selecting a month that begins with a consonant and then selecting another month begins with a consonant (*without replacement*). $\frac{9}{12} \cdot \frac{8}{11} = \frac{72}{132} = \frac{6}{11}$
- 36) Find the probability of choosing a month that starts with a vowel given that it ends in the letter R. $\frac{1}{4}$

J F M A M J J A S O N D
y y k L y e y t r r r r