

Week 9 Practice for Q4Exam2

Date _____ Period _____

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Use the information provided to write the standard form equation of each circle.

1) Center: $(-1, 10)$
Radius: 5

2) Center: $(9, -5)$
Radius: 2

3) Center: $(-12, 2)$
Radius: 2

4) Center: $(11, -16)$
Radius: $\sqrt{3}$

5) Center: $(-8, 12)$
Radius: 6

6) Center: $(-11, -10)$
Radius: 5

7) Center: $(2, -2)$
Radius: $\sqrt{114}$

8) Center: $(13, 5)$
Radius: 5

Find the common ratio and the 8th term.

9) $-1, 5, -25, 125, \dots$

10) $1, -6, 36, -216, \dots$

11) $1, 6, 36, 216, \dots$

12) $-2, -12, -72, -432, \dots$

13) $4, 20, 100, 500, \dots$

14) $3, 12, 48, 192, \dots$

Find the common difference and the 52nd term.

15) $-18, -13, -8, -3, \dots$

16) $-30, -40, -50, -60, \dots$

17) $39, 42, 45, 48, \dots$

18) $2, 12, 22, 32, \dots$

19) $7, 0, -7, -14, \dots$

20) $26, 35, 44, 53, \dots$

Simplify each and state the excluded values.

$$21) \frac{5x + 45}{3} \cdot \frac{1}{x + 9}$$

$$22) \frac{n^2 - 6n - 27}{n - 9} \cdot \frac{9}{n + 10}$$

$$23) \frac{1}{p + 4} \cdot \frac{p^2 - 16}{4p}$$

$$24) \frac{1}{v - 5} \cdot \frac{v^2 - 4v - 45}{v + 5}$$

$$25) \frac{9x^2 - 45x}{8x} \cdot \frac{8x}{9x^2 + 81x}$$

$$26) \frac{4k + 12}{k + 3} \cdot \frac{k - 7}{7 - k}$$

$$27) \frac{7}{m^2 + 12m + 35} \div \frac{5m}{5m^2 + 35m}$$

$$28) \frac{6r - 12}{6r - 6} \div \frac{1}{r - 1}$$

$$29) \frac{x + 1}{-x^2 + 13x - 30} \div \frac{1}{x - 3}$$

$$30) \frac{21n^2 + 3n}{2} \div \frac{56n + 8}{2}$$

$$31) \frac{x - 3}{5} \div \frac{x^2 - 11x + 24}{2}$$

$$32) \frac{n^2 - 6n + 5}{n^2 - 10n + 9} \div \frac{1}{n - 9}$$

$$33) \frac{4}{12n^2 - 16n} \div \frac{2n - 8}{12n^2 - 16n}$$

$$34) \frac{3b^2 + 5b + 2}{6b^2 + b - 2} \div \frac{3b^2 + 11b + 6}{6b^2 + b - 2}$$

$$35) \frac{4x^2 + 2x - 2}{2x + 2} \div \frac{8x - 4}{x^2 + 3x + 2}$$

$$36) \frac{v^2 + 5v + 4}{5v^2 + 8v - 4} \div \frac{5v - 4}{25v^2 - 30v + 8}$$

Simplify each expression.

$$37) \frac{5x}{3y} - \frac{3y}{6}$$

$$38) \frac{6x}{2} + \frac{5}{5y^2}$$

$$39) \frac{3y}{2y} + \frac{6x}{4xy}$$

$$40) \frac{4}{6} - \frac{6v}{4u^2v}$$

41) $\frac{6}{2} - \frac{5}{5x-3}$

42) $\frac{5}{3} + \frac{2}{3n+6}$

43) $\frac{3r}{r+1} + \frac{2}{r-3}$

44) $\frac{3m}{2m} + \frac{m-1}{2m-6}$

45) $\frac{6}{4} - \frac{x+5}{2x^2+15x+18}$

Solve each equation. Remember to check for extraneous solutions.

46) $6 = \sqrt{1-35a}$

47) $\sqrt{2x+18} = \sqrt{-3-x}$

48) $7 + \sqrt{1-4x} = 10$

49) $-7 = -7\sqrt{3b-17}$

Solve each equation.

50) $-9 + 3b^{\frac{1}{2}} = 15$

51) $6 = \left(\frac{y}{2}\right)^{\frac{1}{2}} - 1$

52) $-5 + x^{\frac{3}{2}} = 120$

53) $34 = 5n^{\frac{3}{4}} - 6$

Classify each conic section.

54) $x^2 + y^2 + 8x - 2y + 15 = 0$

55) $x^2 - 2x + y + 5 = 0$

56) $25x^2 + 16y^2 - 100x + 64y - 236 = 0$

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

58) $x^2 - 16y^2 + 96y - 160 = 0$

59) $-x^2 + 2x + y + 5 = 0$

60) $9x^2 + 4y^2 - 36x + 32y + 64 = 0$

61) $4x^2 + 9y^2 - 18y - 135 = 0$

Solve each system of equations.

$$\begin{aligned} 62) \quad & x^2 + 3y^2 - 33x - 3y + 126 = 0 \\ & x - y = 2 \end{aligned}$$

$$\begin{aligned} 63) \quad & x^2 + y^2 + 46x - y + 78 = 0 \\ & 2x + y - 2 = 0 \end{aligned}$$

$$\begin{aligned} 64) \quad & 6x^2 + 2y^2 + x - 145y - 173 = 0 \\ & x + 3y + 1 = 0 \end{aligned}$$

$$\begin{aligned} 65) \quad & x^2 + y^2 + 2x - 17 = 0 \\ & x - y = -1 \end{aligned}$$

$$\begin{aligned} 66) \quad & x^2 - x + y - 14 = 0 \\ & x^2 - 12x + y + 19 = 0 \end{aligned}$$

$$\begin{aligned} 67) \quad & -x^2 + 2y^2 + 2x + 2y - 13 = 0 \\ & x^2 + 19y^2 - 2x - 86y + 97 = 0 \end{aligned}$$

$$\begin{aligned} 68) \quad & x^2 + 2y^2 - 16x - 20y + 81 = 0 \\ & x^2 + 9y^2 - 16x - 90y + 144 = 0 \end{aligned}$$

$$\begin{aligned} 69) \quad & 2x^2 + y^2 - 14x + 2y + 25 = 0 \\ & 4x^2 + y^2 - 28x + 2y + 49 = 0 \end{aligned}$$

$$\begin{aligned} 70) \quad & -5x^2 + 2y^2 + 46x - 149 = 0 \\ & x - y = 1 \end{aligned}$$

$$\begin{aligned} 71) \quad & 3x^2 - 2y^2 - 28x + 3y + 4 = 0 \\ & 2x + y = 3 \end{aligned}$$

$$\begin{aligned} 72) \quad & 3x^2 - 5y^2 - 114x - 4y + 28 = 0 \\ & 3x + y = 2 \end{aligned}$$

$$\begin{aligned} 73) \quad & -x^2 + 4y^2 + 3x + 24y + 30 = 0 \\ & x + y = -3 \end{aligned}$$

$$\begin{aligned} 74) \quad & x^2 + y^2 - 14x - 6y + 33 = 0 \\ & 14x^2 + y^2 - 79x - 6y + 111 = 0 \end{aligned}$$

$$\begin{aligned} 75) \quad & -x^2 + y^2 + 11x - 6y - 37 = 0 \\ & 3x^2 + y^2 - 33x - 6y + 83 = 0 \end{aligned}$$

$$\begin{aligned} 76) \quad & y^2 + x - y - 4 = 0 \\ & -7y^2 + x + 7y + 44 = 0 \end{aligned}$$

$$\begin{aligned} 77) \quad & x^2 + y^2 - 12x - 4y + 23 = 0 \\ & -x^2 + 8y^2 + 12x - 59y + 31 = 0 \end{aligned}$$

Sketch the graph of each function.

$$78) \quad y > -x^2 + 6x - 10$$

$$79) \quad y < -x^2 - 8x - 13$$

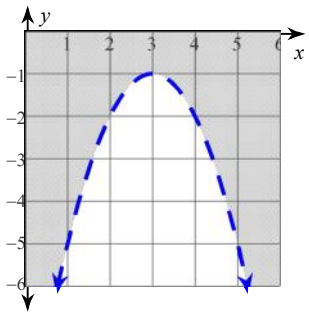
$$80) \quad y \geq -x^2 - 2x - 4$$

$$81) \quad y < -2x^2 - 8x - 4$$

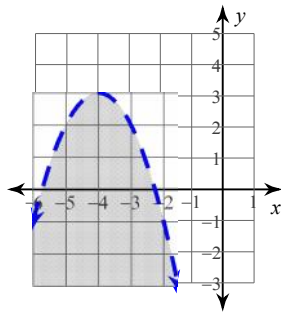
Answers to Week 9 Practice for Q4Exam2 (ID: 1)

- 1) $(x + 1)^2 + (y - 10)^2 = 25$ 2) $(x - 9)^2 + (y + 5)^2 = 4$ 3) $(x + 12)^2 + (y - 2)^2 = 4$
- 4) $(x - 11)^2 + (y + 16)^2 = 3$ 5) $(x + 8)^2 + (y - 12)^2 = 36$ 6) $(x + 11)^2 + (y + 10)^2 = 25$
- 7) $(x - 2)^2 + (y + 2)^2 = 114$ 8) $(x - 13)^2 + (y - 5)^2 = 25$ 9) Common Ratio: $r = -5$
 $a_8 = 78125$
- 10) Common Ratio: $r = -6$ 11) Common Ratio: $r = 6$ 12) Common Ratio: $r = 6$
 $a_8 = -279936$ $a_8 = 279936$ $a_8 = -559872$
- 13) Common Ratio: $r = 5$ 14) Common Ratio: $r = 4$ 15) Common Difference: $d = 5$
 $a_8 = 312500$ $a_8 = 49152$ $a_{52} = 237$
- 16) Common Difference: $d = -10$ 17) Common Difference: $d = 3$ 18) Common Difference: $d = 10$
 $a_{52} = -540$ $a_{52} = 192$ $a_{52} = 512$
- 19) Common Difference: $d = -7$ 20) Common Difference: $d = 9$ 21) $\frac{5}{3}; \{-9\}$
 $a_{52} = -350$ $a_{52} = 485$
- 22) $\frac{9(n+3)}{n+10}; \{9, -10\}$ 23) $\frac{p-4}{4p}; \{-4, 0\}$ 24) $\frac{v-9}{v-5}; \{5, -5\}$ 25) $\frac{x-5}{x+9}; \{0, -9\}$
- 26) $-4; \{-3, 7\}$ 27) $\frac{7}{m+5}; \{-7, -5, 0\}$ 28) $r-2; \{1\}$
- 29) $\frac{(x+1) \cdot -1}{x-10}; \{10, 3\}$ 30) $\frac{3n}{8}; \{-\frac{1}{7}\}$ 31) $\frac{2}{5(x-8)}; \{8, 3\}$
- 32) $n-5; \{9, 1\}$ 33) $\frac{2}{n-4}; \{0, \frac{4}{3}, 4\}$ 34) $\frac{b+1}{b+3}; \{\frac{1}{2}, -\frac{2}{3}, -3\}$
- 35) $\frac{(x+2)(x+1)}{4}; \{-1, -2, \frac{1}{2}\}$ 36) $\frac{(v+4)(v+1)}{v+2}; \{\frac{2}{5}, -2, \frac{4}{5}\}$ 37) $\frac{10x-3y^2}{6y}$
- 38) $\frac{3xy^2+1}{y^2}$ 39) $\frac{3y+3}{2y}$ 40) $\frac{4u^2-9}{6u^2}$ 41) $\frac{15x-14}{5x-3}$
- 42) $\frac{5n+12}{3(n+2)}$ 43) $\frac{3r^2-7r+2}{(r-3)(r+1)}$ 44) $\frac{2m-5}{m-3}$ 45) $\frac{6x^2+43x+44}{2(x+6)(2x+3)}$
- 46) $\{-1\}$ 47) $\{-7\}$ 48) $\{-2\}$ 49) $\{6\}$
- 50) $\{64\}$ 51) $\{98\}$ 52) $\{25\}$ 53) $\{16\}$
- 54) Circle 55) Parabola 56) Ellipse
 $(x+4)^2 + (y-1)^2 = 2$ $y = -(x-1)^2 - 4$ $\frac{(x-2)^2}{16} + \frac{(y+2)^2}{25} = 1$
- 57) Circle 58) Hyperbola 59) Parabola
 $(x-2)^2 + (y+2)^2 = 16$ $\frac{x^2}{16} - (y-3)^2 = 1$ $y = (x-1)^2 - 6$
- 60) Ellipse 61) Ellipse 62) $(6, 4)$
 $\frac{(x-2)^2}{4} + \frac{(y+4)^2}{9} = 1$ $\frac{x^2}{36} + \frac{(y-1)^2}{16} = 1$
- 63) $(-4, 10)$ 64) $(2, -1), (-10, 3)$ 65) $(-4, -3), (2, 3)$ 66) $(3, 8)$
- 67) $(1, 2)$ 68) $(9, 1), (7, 1), (9, 9), (7, 9)$ 69) $(4, -1), (3, -1)$
- 70) $(7, 6)$ 71) $(-1, 5)$ 72) $(-1, 5), (0, 2)$ 73) $(1, -4), (-2, -1)$
- 74) $(2, 3), (3, 6), (3, 0)$ 75) $(6, 7), (6, -1), (5, 7), (5, -1)$ 76) $(-2, -2), (-2, 3)$
- 77) $(7, 6), (5, 6), (10, 1), (2, 1)$

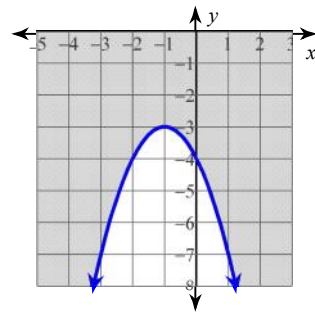
78)



79)



80)



81)

