Question 1

Find the standard form of the equation of the hyperbola satisfying the given conditions.  
  
Endpoints of transverse axis: (0, -10), (0, 10); asymptote: y = https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q15g1.jpgx

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|  |  | https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q15g2.jpg - https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q15g3.jpg = 1 |
|  |  | https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q15g6.jpg - https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q15g7.jpg = 1 |
|  |  | https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q15g4.jpg - https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q15g5.jpg = 1 |
|  |  | https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q15g8.jpg - https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q15g9.jpg = 1 |

Question 2

Find the standard form of the equation of the ellipse satisfying the given conditions.  
  
Endpoints of major axis: (10, -3) and (-2, -3); endpoints of minor axis: (4, -1) and (4, -5)

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|  |  | https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q25g3.jpg + https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q25g4.jpg = 1 |
|  |  | https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q25g7.jpg + https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q25g8.jpg = 0 |
|  |  | https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q25g5.jpg + https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q25g6.jpg = 1 |

Question 3

Find the standard form of the equation of the hyperbola satisfying the given conditions.  
  
Center: (6, 5); Focus: (3, 5); Vertex: (5, 5)

|  |  |  |
| --- | --- | --- |
|  |  | (x - 5)2 - https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q20g2.jpg = 1 |
|  |  | https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q20g3.jpg - (y - 6)2 = 1 |
|  |  | https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q20g1.jpg - (y - 5)2 = 1 |
|  |  | (x - 6)2 - https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q20g4.jpg = 1 |

Question 4

Find the standard form of the equation of the hyperbola satisfying the given conditions.  
  
Endpoints of transverse axis: (-6, 0), (6, 0); foci: (-7, 0), (-7, 0)

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|  |  | https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q16g1.jpg - https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q16g2.jpg = 1 |
|  |  | https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q16g7.jpg - https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q16g8.jpg = 1 |
|  |  | https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q16g3.jpg - https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q16g4.jpg = 1 |
|  |  | https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q16g5.jpg - https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q16g6.jpg = 1 |

Question 5

Identify the equation as a parabola, circle, ellipse, or hyperbola.  
  
9x2 = 4y2 + 36

|  |  |  |
| --- | --- | --- |
|  |  | Circle |
|  |  | Parabola |
|  |  | Ellipse |
|  |  | Hyperbola |

Question 6

Find the standard form of the equation of the ellipse satisfying the given conditions.  
  
Major axis vertical with length 16; length of minor axis = 6; center (0, 0)

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|  |  | https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q23g1.jpg + https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q23g2.jpg = 1 |
|  |  | https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q23g7.jpg + https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q23g8.jpg = 1 |
|  |  | https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q23g3.jpg + https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q23g4.jpg = 1 |
|  |  | https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q23g5.jpg + https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q23g6.jpg = 1 |

Question 7

Find the vertices and locate the foci for the hyperbola whose equation is given.  
  
y = ± https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q19g1.jpg

|  |  |  |
| --- | --- | --- |
|  |  | vertices: (-2https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q19g8.jpg, 0), (2https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q19g9.jpg, 0) foci: (-2https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q19g10.jpg, 0), (2https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q19g11.jpg, 0) |
|  |  | vertices: (-12, 0), (12, 0) foci: (-2https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q19g6.jpg, 0), (2https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q19g7.jpg, 0) |
|  |  | vertices: (0, -2https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q19g2.jpg), (0, 2https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q19g3.jpg) foci: (0, -2https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q19g4.jpg), (0, 2https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q19g5.jpg) |
|  |  | vertices: (-12, 0), (12, 0) foci: (-2https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q19g12.jpg, 0), (2https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q19g13.jpg, 0) |

Question 8

Identify the equation as a parabola, circle, ellipse, or hyperbola.  
  
4x2 = 36 - 4y2

|  |  |  |
| --- | --- | --- |
|  |  | Circle |
|  |  | Hyperbola |
|  |  | Ellipse |

Question 9

Find the vertices and locate the foci for the hyperbola whose equation is given.  
  
81y2 - 64x2 = 5184

|  |  |  |
| --- | --- | --- |
|  |  | vertices: (0, -9), (0, 9) foci: (0, -https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q18g3.jpg), (0, https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q18g4.jpg) |
|  |  | vertices: (-9, 0), (9, 0) foci: (-https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q18g1.jpg, 0), (https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q18g2.jpg, 0) |
|  |  | vertices: (0, -8), (0, 8) foci: (0, -https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q18g5.jpg), (0, https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q18g6.jpg) |
|  |  | vertices: (-8, 0), (8, 0) foci: (-https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q18g7.jpg, 0), (https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q18g8.jpg, 0) |

Question 10

Find the standard form of the equation of the parabola using the information given.  
  
Focus: (3, 3); Directrix: y = -5

|  |  |  |
| --- | --- | --- |
|  |  | (x - 3)2 = 16(y + 1) |
|  |  | (y - 3)2 = 16(x + 1) |
|  |  | (y + 1)2 = 16(x - 3) |
|  |  | (x + 1)2 = 16(y - 3) |

Question 11

Identify the equation as a parabola, circle, ellipse, or hyperbola.  
  
12y = 3(x + 8)2

|  |  |  |
| --- | --- | --- |
|  |  | Hyperbola |
|  |  | Ellipse |
|  |  | Parabola |
|  |  | Circle |

Question 12

Convert the equation to the standard form for a parabola by completing the square on x or y as appropriate.  
  
x2 - 6x - 6y - 21 = 0

|  |  |  |
| --- | --- | --- |
|  |  | (x + 3)2 = -6(y + 5) |
|  |  | (x - 3)2 = 6(y - 5) |
|  |  | (x + 3)2 = 6(y + 5) |
|  |  | (x - 3)2 = 6(y + 5) |

Question 13

Identify the equation as a parabola, circle, ellipse, or hyperbola.  
  
(x - 2)2 = 16 - y2

|  |  |  |
| --- | --- | --- |
|  |  | Ellipse |
|  |  | Hyperbola |
|  |  | Circle |
|  |  | Parabola |

Question 14

Convert the equation to the standard form for a hyperbola by completing the square on x and y.  
  
4x2 - 25y2 - 8x + 50y - 121 = 0

|  |  |  |
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|  |  | https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q13g5.jpg - https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q13g6.jpg = 1 |
|  |  | https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q13g7.jpg - https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q13g8.jpg = 1 |
|  |  | https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q13g1.jpg - https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q13g2.jpg = 1 |
|  |  | https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q13g3.jpg - https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q13g4.jpg = 1 |

Question 15

Identify the equation as a parabola, circle, ellipse, or hyperbola.  
  
2x = 2y2 - 30

|  |  |  |
| --- | --- | --- |
|  |  | Circle |
|  |  | Parabola |
|  |  | Ellipse |
|  |  | Hyperbola |

Question 16

Solve the problem.  
  
An experimental model for a suspension bridge is built. In one section, cable runs from the top of one tower down to the roadway, just touching it there, and up again to the top of a second tower. The towers are both 6.25 inches tall and stand 50 inches apart. At some point along the road from the lowest point of the cable, the cable is 1 inches above the roadway. Find the distance between that point and the base of the nearest tower.

|  |  |  |
| --- | --- | --- |
|  |  | 15.2 in. |
|  |  | 9.8 in. |
|  |  | 15 in. |
|  |  | 10.2 in. |

Question 17

Find the standard form of the equation of the ellipse satisfying the given conditions.  
  
Endpoints of major axis: https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q24g1.jpg and https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q24g2.jpg; endpoints of minor axis: https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q24g3.jpg and https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q24g4.jpg

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| --- | --- | --- |
|  |  | https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q24g11.jpg + https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q24g12.jpg = 1 |
|  |  | https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q24g5.jpg + https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q24g6.jpg = 1 |
|  |  | https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q24g9.jpg + https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q24g10.jpg = 1 |
|  |  | https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q24g7.jpg + https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q24g8.jpg = 1 |

Question 18

Convert the equation to the standard form for a parabola by completing the square on x or y as appropriate.  
  
y2 - 4y - 2x - 2 = 0

|  |  |  |
| --- | --- | --- |
|  |  | (y - 2)2 = 2(x - 3) |
|  |  | (y + 2)2 = 2(x + 3) |
|  |  | (y + 2)2 = -2(x + 3) |
|  |  | (y - 2)2 = 2(x + 3) |

Question 19

Find the standard form of the equation of the ellipse satisfying the given conditions.  
  
Major axis horizontal with length 12; length of minor axis = 6; center (0, 0)

|  |  |  |
| --- | --- | --- |
|  |  | https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q22g5.jpg + https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q22g6.jpg = 1 |
|  |  | https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q22g7.jpg + https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q22g8.jpg = 1 |
|  |  | https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q22g3.jpg + https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q22g4.jpg = 1 |
|  |  | https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q22g1.jpg + https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q22g2.jpg = 1 |

Question 20

Find the standard form of the equation of the parabola using the information given.  
  
Focus: (-3, -1); Directrix: x = 7

|  |  |  |
| --- | --- | --- |
|  |  | (y + 1)2 = -20(x - 2) |
|  |  | (x - 2)2 = -20(y + 1) |
|  |  | (x + 1)2 = -20(y - 2) |
|  |  | (y - 2)2 = -20(x + 1) |

Question 21

Solve the problem.  
  
An experimental model for a suspension bridge is built. In one section, cable runs from the top of one tower down to the roadway, just touching it there, and up again to the top of a second tower. The towers stand 40 inches apart. At a point between the towers and 10 inches along the road from the base of one tower, the cable is 1 inches above the roadway. Find the height of the towers.

|  |  |  |
| --- | --- | --- |
|  |  | 3.5 in. |
|  |  | 4.5 in. |
|  |  | 6 in. |
|  |  | 4 in. |

Question 22

Find the standard form of the equation of the parabola using the information given.  
  
Vertex: (4, -7); Focus: (3, -7)

|  |  |  |
| --- | --- | --- |
|  |  | (x + 4)2 = -16(y - 7) |
|  |  | (x + 4)2 = 16(y - 7) |
|  |  | (y + 7)2 = -4(x - 4) |
|  |  | (y + 7)2 = 4(x - 4) |

Question 23

Convert the equation to the standard form for a hyperbola by completing the square on x and y.  
  
4y2 - 25x2 - 16y + 100x - 184 = 0

|  |  |  |
| --- | --- | --- |
|  |  | https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q14g5.jpg - https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q14g6.jpg = 1 |
|  |  | https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q14g7.jpg - https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q14g8.jpg = 1 |
|  |  | https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q14g1.jpg - https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q14g2.jpg = 1 |

Question 24

Find the vertices and locate the foci for the hyperbola whose equation is given.  
  
49x2 - 16y2 = 784

|  |  |  |
| --- | --- | --- |
|  |  | vertices: (0, -4), (0, 4) foci: (0, -https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q17g5.jpg), (0, https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q17g6.jpg) |
|  |  | vertices: (-7, 0), (7, 0) foci: (-https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q17g3.jpg, 0), (https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q17g4.jpg, 0) |
|  |  | vertices: (-4, 0), (4, 0) foci: (-https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q17g7.jpg, 0), (https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q17g8.jpg, 0) |
|  |  | vertices: (-4, 0), (4, 0) foci: (-https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q17g1.jpg, 0), (https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q17g2.jpg, 0) |

Question 25

Find the standard form of the equation of the ellipse satisfying the given conditions.  
  
Foci: (0, -2), (0, 2); y-intercepts: -3 and 3

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|  |  | https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q21g3.jpg + https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q21g4.jpg = 1 |
|  |  | https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q21g7.jpg + https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q21g8.jpg = 1 |
|  |  | https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q21g5.jpg + https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q21g6.jpg = 1 |
|  |  | https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q21g1.jpg + https://lms.grantham.edu/courses/1/MA14120162626106/ppg/ma%20141%20w5%20quiz1113152044/f1q21g2.jpg = 1 |