

Form A	Form B	Form C	Form D	Form E	Form AB
1) D	1) D	1) B	1) D	1) C	1) A
2) E	2) E	2) D	2) A	2) B	2) E
3) B	3) B	3) D	3) B	3) A	3) B
4) E	4) E	4) C	4) C	4) A	4) C
5) A	5) B	5) D	5) E	5) E	5) D
6) B	6) B	6) A	6) B	6) D	6) C
7) C	7) C	7) E	7) D	7) E	7) A
8) D	8) D	8) B	8) B	8) E	8) B
9) A	9) D	9) D	9) A	9) C	9) A
10) E	10) A	10) C	10) C	10) B	10) C
11) B	11) B	11) D	11) B	11) D	11) B
12) C	12) D	12) C	12) C	12) A	12) B
13) E	13) D	13) B	13) C	13) B	13) E
14) A	14) A	14) B	14) C	14) C	14) B
15) B	15) C	15) B	15) B	15) D	15) D

Grading Rubric for Math 1503, Form D

$$1) \quad \frac{x}{x+6} + 1 < 0 \rightarrow \frac{2x+6}{x+6} < 0 \rightarrow (-6, -3)$$

[2 points] [2 points] [3 points]

$$2) \quad x = \frac{4-3y}{-7y} \rightarrow -7xy = 4-3y \rightarrow 3y - 7xy = 4 \rightarrow y = f^{-1}(x) = \frac{4}{3-7x}$$

[2 points] [3 points] [2 points]

$$3) \quad \text{den} = x+7 \rightarrow \text{partial num} = -5x \rightarrow \text{num} = -5x+70 \rightarrow y = \frac{-5x+70}{x+7}$$

[2 pts.] [2 pts.] [2 pts.] [1 pt.]

It is possible for a student to earn 7 points with just an answer !!!!

$$4) \quad Y^2 = \rightarrow \text{den} = \sqrt[3]{X} \rightarrow \text{num} = M \sqrt{T} \rightarrow \text{must have k in num. or den.}$$

[2 pts.] [2 pts.] [2 pts.] [1 point]

It is possible for student to earn 7 points with just correct answer, again!!

$$5) \quad \frac{1}{4} [-8x^3]^2 - 5[-8x^3] \rightarrow 16x^6 + 40x^3$$

[3 points] [2 pts.] [2 pts.]

$$6) \quad \frac{Y-11}{T} = e^{Mx-B} \rightarrow Mx-B = \ln\left(\frac{Y-11}{T}\right) \rightarrow x = \frac{\ln\left(\frac{Y-11}{T}\right) + B}{M}$$

[2 points] [2 points] [3 points]

Grading Rubric for Math 1523, Form AB

1) all of the following are worth one point apiece:

$$C: (0, 0) \quad V: (77, 0) (-77, 0) \quad F: (85, 0) (-85, 0) \quad A: y = \frac{36}{77} x, y = -\frac{36}{77} x$$

$$2) ||u|| = 75 \rightarrow 59 \left(\frac{72}{75} i - \frac{21}{75} j \right) \rightarrow \frac{4248}{75} i - \frac{1239}{75} j$$

[2 points]

[3 points]

[2 points]

$$3) c = 11 \rightarrow a = 16 \rightarrow b^2 = 135 \rightarrow \frac{x^2}{135} + \frac{y^2}{256} = 1$$

[1 pt.]

[2 pts.]

[2 pts.]

[2 pts.]

$$4) r \cos \theta = 9 - 4 r \sin \theta \rightarrow r \cos \theta + 4 r \sin \theta = 9 \rightarrow r = \frac{9}{\cos \theta + 4 \sin \theta}$$

[4 points]

[1 point]

[2 points]

$$5) \text{focus} = (-5, 0) \rightarrow \text{directrix: } x = -1 \rightarrow y^2 = -8(x + 3)$$

[2 points]

[2 points]

[3 points]

$$6) 6 \langle -8, -4 \rangle = \langle -48, -24 \rangle \rightarrow 6v - u = \langle -45, -28 \rangle \rightarrow \text{norm} = 53$$

[3 points]

[2 points]

[2 points]

Grading Rubric for Math 1523, Form C

1) $\|u\| = 75 \rightarrow 37\left(\frac{21}{75}i - \frac{72}{75}j\right) \rightarrow \frac{777}{75}i - \frac{2664}{75}j$
[2 points] [3 points] [2 points]

2) $c = 14 \rightarrow a = 18 \rightarrow b^2 = 128 \rightarrow \frac{x^2}{128} + \frac{y^2}{324} = 1$
[1 pt.] [2 pts.] [2 pts.] [2 pts.]

3) $r \sin \theta = 9 - 4r \cos \theta \rightarrow r \sin \theta + 4r \cos \theta = 9 \rightarrow r = \frac{9}{\sin \theta + 4 \cos \theta}$
[4 points] [1 point] [2 points]

4) all of the following are worth one point apiece:

C: (0, 0) V: (36,0) (-36,0) F: (85,0) (-85,0) A: $y = \frac{77}{36}x, y = -\frac{77}{36}x$

5) focus = (-5, 0) \rightarrow directrix: $x = -9 \rightarrow y^2 = 8(x + 7)$
[2 points] [2 points] [3 points]

6) $5\langle -8, -13 \rangle = \langle -40, -65 \rangle \rightarrow 5v - u = \langle -60, -63 \rangle \rightarrow \text{norm} = 87$
[3 points] [2 points] [2 points]

Grading Rubric for Math 1643, Form A

$$1) (2^3)^{4x-9} = (2^5)^{-7+2x} \rightarrow 12x - 27 = -35 + 10x \rightarrow 2x = -8 \rightarrow x = -4$$

[3 points] [2 points] [2 points]

$$2) y = a(x+4)^2 - 9 \rightarrow 54 = 9a - 9 \rightarrow a = 7 \rightarrow y = 7(x+4)^2 - 9$$

[2 points] [3 points] [2 points]

$$3) \text{den} = x + 8 \rightarrow \text{partial num} = -3x \rightarrow \text{num} = -3x + 24 \rightarrow y = \frac{-3x+24}{x+8}$$

[2 pts.] [2 pts.] [2 pts.] [1 pt.]

It is possible for a student to earn 7 points with just an answer !!!!

$$4) \sqrt{Y} = \rightarrow \text{den} = X^3 \rightarrow \text{num} = M T^2 \rightarrow \text{must have } k \text{ in num. or den.}$$

[2 pts.] [2 pts.] [2 pts.] [1 point]

It is possible for student to earn 7 points with just correct answer, again!!

$$5) \sqrt{73 - x^2} = 4 \left(\frac{3}{2}\right) \rightarrow \sqrt{73 - x^2} = 8 \rightarrow 73 - x^2 = 64 \rightarrow x = 3 \text{ or } -3$$

[2 points] [2 points] [1 point] [2 points]

[the student may also go this route: $\log_4(73 - x^2) = 3$]

$$6) \frac{Y+11}{K} = e^{Mx+B} \rightarrow Mx+B = \ln\left(\frac{Y+11}{K}\right) \rightarrow x = \frac{\ln\left(\frac{Y+11}{K}\right) - B}{M}$$

[2 points] [2 points] [3 points]

Grading Rubric for Math 1643, Form E

1) $y = a(x-4)^2 - 19 \rightarrow -67 = 16a - 19 \rightarrow a = -3 \rightarrow y = -3(x-4)^2 - 19$
[2 points] [3 points] [2 points]

2) $\text{den} = x - 20 \rightarrow \text{partial num} = -5x \rightarrow \text{num} = -5x - 40 \rightarrow y = \frac{-5x - 40}{x - 20}$
[2 pts.] [2 pts.] [2 pts.] [1 pt.]

It is possible for a student to earn 7 points with just an answer !!!!

3) $Y^2 = \rightarrow \text{den} = \sqrt[3]{X} \ M \rightarrow \text{num} = \sqrt{T} \rightarrow \text{must have k in num. or den.}$
[2 pts.] [2 pts.] [2 pts.] [1 point]

It is possible for student to earn 7 points with just correct answer, again!!

4) $\sqrt{65 - x^2} = 8^{\frac{2}{3}} \rightarrow \sqrt{65 - x^2} = 4 \rightarrow 65 - x^2 = 16 \rightarrow x = 7 \text{ or } -7$
[2 points] [2 points] [1 point] [2 points]

[the student may also go this route: $\log_8(65 - x^2) = \frac{4}{3}$]

5) $\frac{Y + 11}{K} = \ln(MX + B) \rightarrow MX + B = e^{\frac{Y + 11}{K}} \rightarrow x = \frac{e^{\frac{Y + 11}{K}} - B}{M}$
[2 points] [2 points] [3 points]

6) $(2^3)^{4x-9} = (2^4)^{-7+2x} \rightarrow 12x - 27 = -28 + 8x \rightarrow 4x = -1 \rightarrow x = -\frac{1}{4}$
[3 points] [2 points] [2 points]