

Your version is . Please copy your version into your answer form. Please answer the questions first here (and on the scratch paper). Copy your answers only at the end into the answer form. You will return only the answer form, you will keep this task sheet and you will keep your scratch paper for this part. Good luck!

Question: Demand and supply are given by $Q_D = 16/P$ and $Q_S = 2P + P^2$. What is the price in equilibrium? (assume that the price must be positive) (2 points)

1:	a other value	b 0	c 2	d $4/\sqrt{3}$	e 14
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Question: Be $f(x) = 2x^2 - 5x$. What is $f'(2)$? (1 point)

2:	a other value	b 3	c 4	d 5	e 2
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Question: Find the first derivative of $\frac{1}{2}x^4 - 2x^2 - 3$ (1 point)

3a: None of the following is correct.

3b: $x^3 - 2x$

3c: $2x^3 - 4x - 3$

3d: $\frac{1}{2}x^3 - 2x$

3e: $2x^3 - 4x$

Question: Find the first derivative of $x/(x^2 + 4)$ (1 point)

4:	a other value	b $\frac{1}{2x}$	c $\frac{4}{(x+4)^2}$	d $\frac{x^2-4}{(x^2+4)^2}$	e $\frac{4-x^2}{(x^2+4)^2}$
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Question: Be $y = 2x^3 - 5x + 11$. What is dx/dy ? (2 points)

5a: None of the following is correct.

5b: $\ln(6x^2 - 5)$

5c: $6x^2 - 5$

5d: $6x^{-2} - \frac{1}{5}$

5e: $(6x^2 - 5)^{-1}$

Question: Be $f(x) = x^3 - 6x^2 + 9x + 18$. Where does $f(x)$ have a local minimum? (3 points)

6:	a other value	b 1	c 2	d 3	e 0
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Question: Be $f(x, y) = e^{3xy}$. What is the value of $f_{xy}(3, 1)$? (3 points)

7:	a other value	b $30e^9$	c e^9	d $3e^{3xy}$	e $12e^3$
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Question: Maximise $(x + 2) \cdot (y - 4)$ subject to the constraint $x + 2y = 2$. Which value for y satisfies the first-order condition for the local extremum? (4 points)

8:	a other value	b 4	c -4	d -2	e 3
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Question: Maximise $x + 2y$ subject to the constraint $x + y^2 = 3$. Which value for x satisfies the first-order condition for the local extremum? (5 points)

9:	a other value	b 0	c 1	d 2	e 3
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Question: Find $\int \frac{x-1}{2x+1} dx$ (3 points)

10a: None of the following is correct.

10b: $-\frac{1}{4}(\ln(2x+1) - 2x) + C$

10c: $\frac{1}{4}((x^2 - 2x) \ln(2x+1)) + C$

10d: $\frac{1}{2}(x^4 - x^3 - 2x^2) + C$

10e: $-\frac{1}{4}(3 \ln(2x+1) - 2x) + C$

Question: Find $\int_e^{2e} \frac{x+1}{x} dx$ (3 points)

11a: None of the following is correct.

11b: $-\frac{1}{2}(e^{-1})$

11c: $\ln(2e) + e - 1$

11d: $\frac{1}{3}(e^{-1}(3e+2))$

11e: $\frac{1}{2x}(3e^2 + 2e)$

Question: What is the value of $\int_3^2 f(x) dx$ if $F(x) = 5x + 3$? (2 points)

12:	a other value	b 5	c -5	d -3	e 3
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Question: Be $u > 1$ and $f(x) = x^{-1}$, what is $\frac{d}{du} \int_1^u f(x) dx$? (2 points)

13:	a other value	b $\ln x$	c $\ln u$	d x^{-1}	e u^{-1}
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total number of points: 32
obtainable through randomisation: 7
sufficient to pass this part: 16