

MATH 112 – EXAM II Hints and Answers
Spring 2016

1. (3 points each)

(a) $-\frac{3}{4x^4} - \frac{2}{x^5} + 6x^{2/3} + C$

(b) $\frac{1}{2}x^2 + x^3 - \ln x - 3x + C$

2. (2 points each line)

$f(x)$ has a local minimum	A	B	C	<input checked="" type="checkbox"/> D	E	F	G
$f(x)$ is concave down	<input checked="" type="checkbox"/> A	<input checked="" type="checkbox"/> B	<input checked="" type="checkbox"/> C	D	E	F	G
$f(x)$ has a horizontal point of inflection	A	B	C	D	E	<input checked="" type="checkbox"/> F	G
$f'(x) > 0$ and $f''(x) < 0$	<input checked="" type="checkbox"/> A	B	C	D	E	F	G
$f'(x) > 0$ and $f''(x) = 0$	A	B	C	D	<input checked="" type="checkbox"/> E	F	G
$f''(x) > 0$	A	B	C	<input checked="" type="checkbox"/> D	E	F	<input checked="" type="checkbox"/> G

3. (4 points each)

(a) $q = 30$

(b) local minimum

(c) $AC(q) = \frac{1}{25}q + \frac{36}{q} + 50.66$

(d) 54.66 dollars per Item

4. (a) (4 points) 16.49

(b) (4 points) the change in the amount of water in the vat from $t = 1$ to $t = 5$

(c) (3 points) $B'(t) = (3t + 4) \cdot \frac{2t}{t^2 + 1} + 3 \ln(t^2 + 1) - \frac{50}{(t + 2)^2}$

(d) (5 points) 67.07 gallons