

## WORKSHEET ON APPLICATIONS OF INTEGRALS

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- 1) Find the area enclosed by the parabola  $y = \frac{3x^2}{4}$  and the line  $3x - 2y + 12 = 0$ .
  - 2) Find the area of the smaller region between the ellipse  $9x^2 + y^2 = 36$  and the line  $\frac{x}{2} + \frac{y}{6} = 1$
  - 3) Using integration find the area of region bounded by the triangle whose vertices are (1,0), (2,2) and (3,1).
  - 4) Using the method of integration find the area region bounded by the lines  $x+2y=2, y-x=1$  and  $2x+y=7$ .
  - 5) Find the area of the region enclosed between the two circles  $x^2 + y^2 = 4$  and  $(x - 2)^2 + y^2 = 4$
  - 6) Find the area of the region bounded by  $\{(x, y): x^2 \leq y \leq |x|\}$
  - 7) Find the area of the region bounded the curve  $y = \sqrt{1 - x^2}$ , line  $y = x$  and the positive  $x$ - axis.
  - 8) Using integration ,find the area of the following region:  
 $\{(x,y): |x - 1| \leq y \leq \sqrt{5 - x^2}\}$
  - 9) Find the area of the region bounded the curve  $y = 4x - x^2$  and the  $x$  -axis.
  - 10) Find the area of the region  $\{(x, y): 0 \leq y \leq x^2 + 1, 0 \leq y \leq x + 1, 0 \leq x \leq 2\}$
  - 11) Find the area of the region  $\{(x, y): x^2 + y^2 \leq 8x, y^2 \geq 4x; x \geq 0; y \geq 0\}$
  - 12) Find the area bounded by the curve  $y = 2x - x^2$  and the line  $y = -x$  .
  - 13) Find the area bounded by the curves  $y = 6x - x^2$  and  $y = x^2 - 2x$ .
  - 14) Find the area bounded by the line  $x = 0, x = 2$  and the curves  $y = 2^x, y = 2x - x^2$ .
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