

- (1) At  $(0, 0)$  the graph of  $f(x) = |x|$
- (a) has a tangent line at  $y = 0$
  - (b) has infinitely many tangent lines
  - (c) has no tangent line
  - (d) has two tangent lines  $y = -x$  and  $y = x$ .
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- (2) The line tangent to the graph of  $f(x) = x$  at  $(0, 0)$
- (a) is  $y = 0$
  - (b) is  $y = x$
  - (c) does not exist
  - (d) is not unique. There are infinitely many tangent lines.
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- (3) Water is being poured into a cylindrical vase. The height of the water changes as more water is poured in. The instantaneous change in the height with respect to the volume of water in the vase
- (a) is constant
  - (b) varies inversely as the cube of the radius
  - (c) not enough information to tell.