# Robotics I - Sheet for Exercise 2

**February 5, 2018**

Name: _____

Consider motion sensing devices available for fixed-base robot manipulators and related issues in the measurement process. Check if each of the following statements is **True** or **False**, and provide a *very short* motivating/explanation sentence.

1. Encoders of the absolute type cannot be used for estimating joint velocity.
   **True** ☐ **False** ☐

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2. Encoders should never be mounted beyond the reduction element in motor-link transmission systems.
   **True** ☐ **False** ☐

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3. Dynamic repeatability of a robot improves when the robot is moving at slow speed.
   **True** ☐ **False** ☐

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4. Absolute encoders need no calibration before being operative.
   **True** ☐ **False** ☐

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5. For estimating velocity, integration of accelerometer data outperforms differentiation of encoder data.
   **True** ☐ **False** ☐

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6. Vision systems are preferred when a direct measure of the robot end-effector position is needed.
   **True** ☐ **False** ☐

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7. An incremental encoder with 6000 ppt has a better resolution than an absolute encoder with 15 tracks.
   **True** ☐ **False** ☐

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8. With a sensor mounted on the motor, the larger is the reduction ratio $N$ of the transmission, the better the resolution of the link position estimate is.
   **True** ☐ **False** ☐

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9. In general, repeatability of a sensor can be improved by calibration, whereas accuracy cannot.
   **True** ☐ **False** ☐

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10. Sensor devices should be used only in their domain of linearity (within $2 \div 3\%$ of deviation).
    **True** ☐ **False** ☐

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