Section 12-2: Radicals and the Irrational Numbers

Basic Rules for Radicals That Are Irrational Numbers

1. 010001a, P.I. 7.N.18
The expression $\sqrt{93}$ is a number between
[A] 3 and 9 [B] 46 and 47
[C] 9 and 10 [D] 8 and 9

2. 010703a, P.I. 7.N.18
Which point on the accompanying number line best represents the position of $\sqrt{5}$?

[A] *A* [B] *D* [C] *C* [D] *B*

3. 060003a, P.I. 7.N.2
Which number is rational?
[A] $\frac{5}{4}$ [B] π [C] $\sqrt{7}$ [D] $\sqrt{\frac{3}{2}}$

4. 080102a, P.I. 7.N.2
Which expression is rational?
[A] $\sqrt{3}$ [B] $\sqrt{\frac{1}{4}}$ [C] $\sqrt{\frac{1}{2}}$ [D] π

5. 069923a, P.I. 7.N.2
Which number below is irrational?
$\sqrt{\frac{4}{9}}$, $\sqrt{20}$, $\sqrt{121}$
Why is the number you chose an irrational number?

6. 060502a
The amount of time, *t*, in seconds, it takes an object to fall a distance, *d*, in meters, is expressed by the formula $t = \sqrt{\frac{d}{4.9}}$.
Approximately how long will it take an object to fall 75 meters?
[A] 0.26 sec [B] 3.9 sec
[C] 2.34 sec [D] 7.7 sec

[1] C

[2] C

[3] A

[4] B

[2] $\sqrt{20}$ and an appropriate explanation is given, such as the number cannot be written as a repeating or terminating decimal or it cannot be written as a fraction or it is not a perfect square.
[1] $\sqrt{20}$ and an inappropriate explanation or no explanation is given.
or [1] $\sqrt{20}$ and a correct explanation is given, but one other number is also identified as irrational.
[0] All three numbers are identified as irrational.
or [0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an
[5] obviously incorrect procedure.

[6] B