**ANSWERS**

**Determine whether each decimal is rational or irrational number.**

|  |  |  |  |
| --- | --- | --- | --- |
| **1.**  | $$0.1223426574$$ | **2.**  | $$0.3434343…………..$$ |
|  | **Irrational number** |  | **Rational number** |
| **3.**  | $$0.\overbar{22}$$ | **4.**  | $$2.389467123…………..$$ |
|  | **Rational number** |  | **Irrational number** |
| **5.**  | $$12.34\overbar{9}$$ | **6.**  | $$π+34$$ |
|  | **Rational number** |  | **Irrational number** |
| **7.**  | $$1.12-π$$ | **8.**  | $$34,123876………………$$ |
|  | **Irrational number** |  | **Irrational number** |

**Convert each fraction to a decimal, then determine if it is a rational or an irrational number.**

|  |  |  |  |
| --- | --- | --- | --- |
| **9.**  | $$\frac{32}{25}$$ | **10.**  | $$3\frac{1}{9}$$ |
|  | $$\frac{32}{25}=\frac{32\*4}{25\*4}=\frac{128}{100}=1.28$$$$\frac{32}{25}=1.28$$**A terminating decimal****Rational number** |  | $$3\frac{1}{9}=\frac{28}{9}$$$$ 28÷9=3.11……$$$$-27$$$$ 10$$$$ -9$$$ 10$$$ -9 $$$$ 1 $$$$3\frac{1}{9}=3.\overbar{1}$$**A repeating decimal****Rational number** |
| **11.**  | $$\frac{5}{11}$$ | **12.**  | $$\frac{45}{23}$$ |
|  | $$ 5÷11=0.4545………$$$$-0$$$$ 50$$$$-44$$$ 60$$$ -55 $$$$ 50$$$$ -44 $$$$ 60$$$$ -55 $$$$ 5 $$$$\frac{5}{11}=0.\overbar{45}$$**A repeating decimal****Rational number** |  | $$ 45÷23=1.9565……$$$$-23$$$$ 220$$$$-207$$ **130**$$ -115 $$$$ 150$$$$ -138 $$$$ 12$$$$\frac{45}{23}=1.9565……$$**Irrational number** |

**Determine whether each square root is rational or irrational number.**

|  |  |  |  |
| --- | --- | --- | --- |
| **13.**  | $$\sqrt{\frac{324}{81}}$$ | **14.**  | $$\sqrt{155}$$ |
|  | $$\sqrt{\frac{324}{81}}=\frac{18}{9}=2$$**This number is rational.** |  | $$\sqrt{155}=12.449899……..$$**This number is irrational.** |
| **15.**  | $$\sqrt{π}$$ | **16.**  | $$-\sqrt{7,921}$$ |
|  | $$\sqrt{π}=1.772453…….$$**This number is irrrational.** |  | $$-\sqrt{7,921}=-89$$**This number is rational.** |

|  |  |  |  |
| --- | --- | --- | --- |
| **17.**  | $$-\sqrt{256}$$ | **18.**  | $$\sqrt{0.1243}$$ |
|  | $$-\sqrt{256}=16$$**This number is rational.** |  | $$\sqrt{0.1243}=0.3525$$**This number is rational.** |
| **19.**  | $$\sqrt{487}$$ | **20.**  | $$\sqrt{6,084}$$ |
|  | $$\sqrt{487}=22.06807……..$$**This number is irrational.** |  | $$\sqrt{6,084}=78$$**This number is rational.** |