Rational or Irrational

Identify the following as rational or irrational.

1) $\frac{2}{3}$ Rat

2) $\sqrt{27}$ IRR

3) 4.575 Rat

4) $18.\overline{45}$ Rat

5) $\sqrt{147}$ IRR

6) $\sqrt{100}$ Rat

7) $\sqrt[3]{17}$ IRR

8) $2\frac{4}{5}$ Rat

9) π IRR

10) -264 Rat

11) $\sqrt{27} + \sqrt{3}$ IRR

12) $4 + 0.28$ Rat

13) $3 + \sqrt{5}$ IRR

14) $3\sqrt{5} - \sqrt{20}$ IRR

15) $2\sqrt{10} \cdot \sqrt{20}$ IRR

16) $\sqrt{10} \cdot 4\sqrt{10}$ Rat

17) $\sqrt{6} \cdot 7$ IRR

18) $\sqrt{12} \cdot \sqrt{3}$ Rat

19) $\frac{5}{6} + \frac{3}{4}$ Rat

20) $20.35 + 2.45$ Rat

Identify each of the following as rational or irrational.
Then choose the appropriate rule that justifies your answer.

Rules:
Adds
A. The sum of two rational numbers is always rational.
B. The sum of two irrational numbers is sometimes irrational.
C. The sum of two irrational numbers is sometimes rational.
D. The sum of one rational number and one irrational number is always irrational.

Multiply
E. The product of two rational numbers is always rational.
F. The product of two irrational numbers is sometimes rational.
G. The product of two irrational numbers is sometimes irrational.
H. The product of one rational number and one irrational number is sometimes irrational.
I. The product of one rational number and one irrational number is sometimes rational.

21) $6 + \sqrt{4}$ $= 8$
Rat Rat = Rat (A)

22) $2 \times 4.5 = 9$
Rat Rat Rat (E)

23) $\sqrt{6} + 8$
IRR + Rat = IRR (D)

24) $\sqrt{10} \cdot \sqrt{3} = \sqrt{30}$
IRR · IRR = IRR (G)

25) $\sqrt{12} \cdot \sqrt{3} = 6$
IRR · IRR = Rat (F)

26) $\sqrt{5} + \sqrt{15}$
IRR + IRR = IRR (B)

27) $\sqrt{5} \cdot 0 = 0$
IRR · Rat = Rat (I)

28) $\sqrt{7} \cdot 18 = 18\sqrt{7}$
IRR · Rat = IRR (H)

29) $3\sqrt{5} - 3\sqrt{5} = 0$
IRR − IRR = Rat (C)

30) $3\sqrt{2} \cdot \sqrt{8} = 12$
IRR · IRR = Rat (F)

