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Foundation of Algebra
HW#6: Ratio and Proportion

Date __3/18/2020__

State if each pair of ratios forms a proportion. Show All work to receive full credit

1) $\dfrac{16}{30}$ and $\dfrac{4}{5}$ $\dfrac{16}{30}=\dfrac{4}{5}$ $\dfrac{4\times30}{5\times30}=\dfrac{9\times16}{150}=\dfrac{4}{5}$

A) Yes   **B) No**

2) $\dfrac{5^2}{3}$ and $\dfrac{10}{6}$ $\dfrac{10}{6}=\dfrac{10}{6}$ $\dfrac{3}{3}=\dfrac{10}{6}$ It is a true proportion

A) Yes   B) No

3) $\dfrac{15}{30}$ and $\dfrac{5}{6}$ $\dfrac{15}{30}=\dfrac{5}{6}$ $\dfrac{75}{150}=\dfrac{5}{6}$

A) Yes   **B) No**

4) $\dfrac{3}{4}$ and $\dfrac{6}{12}$ $\dfrac{3}{4}=\dfrac{6}{12}$ $\dfrac{9}{12}=\dfrac{6}{12}$ is NOT a true proportion

A) No   B) Yes

5) $\dfrac{25}{24}$ and $\dfrac{5}{6}$ $\dfrac{25}{24}=\dfrac{5}{6}$ $24\times5=120$ $25\times6=150$

A) Yes   **B) No**

6) $\dfrac{12}{20}$ and $\dfrac{6}{5}$ $\dfrac{12}{20}=\dfrac{6}{5}$ $\dfrac{12}{20}=\dfrac{6}{5}$ $\dfrac{-15}{20}=\dfrac{6}{5}$

A) Yes   **B) No**

7) $\dfrac{6}{4}$ and $\dfrac{36}{24}$ $\dfrac{6}{4}=\dfrac{36}{24}$ $\dfrac{24}{24}=\dfrac{36}{24}$

A) No   B) Yes

8) $\dfrac{5}{6}$ and $\dfrac{30}{20}$ $\dfrac{20}{20}=\dfrac{30}{30}$ $\dfrac{6}{4}=\dfrac{30}{20}$ is a true proportion

A) Yes   B) No

9) $\dfrac{4}{6}$ and $\dfrac{32}{36}$ $\dfrac{32}{36}=\dfrac{24}{36}$ $\dfrac{4}{6}=\dfrac{32}{36}$ is not a true proportion

A) No   B) Yes

10) $\dfrac{4}{5}$ and $\dfrac{20}{30}$ $\dfrac{20}{30}=\dfrac{20}{30}$ $\dfrac{4}{5}=\dfrac{20}{30}$ is not a true proportion

A) No   B) Yes

Solve each proportion. Show All work to receive full credit

11) $\dfrac{3}{6}=\dfrac{5}{x}$ $6\times5=3(x)$ $\dfrac{30}{3}=\dfrac{3(x)}{3}$ $10=(x)=\boxed{x=10}$

12) $\dfrac{6}{b}=\dfrac{4}{8}$ $6\times8=4(b)$ $\dfrac{48}{4}=\dfrac{4(b)}{4}$ $12=(b)=\boxed{b=12}$

13) $\dfrac{5}{m}=\dfrac{2}{4}$ $10\times7=5(x)$ $\dfrac{70}{5}=\dfrac{5(x)}{5}$ $14=x=\boxed{x=14}$

14) $\dfrac{k}{15}=\dfrac{2}{6}$ $15\times2=6(k)$ $\dfrac{30}{6}=\dfrac{6(k)}{6}$ $5=(k)=\boxed{k=5}$

15) $\dfrac{3}{x}=\dfrac{2}{6}$ $3\times6=2(x)$ $\dfrac{18}{2}=\dfrac{2(x)}{2}$ $9=(x)=\boxed{x=9}$

$k\times6=15\times2$ $\dfrac{k\times6}{6}=\dfrac{30}{6}=\boxed{k=5}$

25) $\dfrac{3}{2} = \dfrac{4}{P}$ $\quad 6 \times 4 = 2(P)$ $\dfrac{24}{2} = \dfrac{2(P)}{2} = 12 = (P) \Rightarrow \boxed{P=12}$

26) $\dfrac{5}{2} = \dfrac{m}{6}$ $\quad 2(m) = 6 \times 5$ $\dfrac{2(m)}{2} = \dfrac{30}{2} \Rightarrow \boxed{(m)=15}$

27) $\dfrac{3}{2} = \dfrac{5}{v}$ $\quad 4 \times 5 = 2(v)$ $\dfrac{20}{2} = \dfrac{2(v)}{2} = 10 = v \Rightarrow \boxed{v=10}$

28) $\dfrac{2}{8} = \dfrac{a}{6}$ $\quad \dfrac{8(a)}{8} = \dfrac{6 \times 2}{8} = (a) = 14 \Rightarrow \boxed{(a)=14}$

29) $\dfrac{3}{4} = \dfrac{6}{b}$ $\quad 8 \times 6 = 4(b)$ $\dfrac{64}{4} = \dfrac{4(b)}{4} = 16 = (b) \Rightarrow \boxed{b=16}$

30) $\dfrac{8}{2} = \dfrac{a}{6}$ $\quad 2(a) = 48$ $\dfrac{2(a)}{2} = \dfrac{48}{2} \Rightarrow \boxed{(a)=24}$

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16) $\dfrac{3}{2} = \dfrac{6}{N}$ $\quad 4(N) = 2(N)$ $\dfrac{4(N)}{4} = \dfrac{8(N)}{6} = 3 = (N) \Rightarrow \boxed{N=3}$

17) $\dfrac{3}{2} = \dfrac{7}{K}$ $\quad 3 \times 7 = 2(K)$ $\dfrac{21}{21} = \dfrac{21(K)}{21} = 1 = K \Rightarrow \boxed{K=1}$

18) $\dfrac{15}{5} = \dfrac{K}{3}$ $\quad 15 \times 3 = 5(K)$ $\dfrac{45}{3} = \dfrac{3(K)}{3}$ $15 = (K) \Rightarrow \boxed{K=15}$

19) $\dfrac{b}{2} = \dfrac{6}{3}$ $\quad 2 \times 6 = 3(b)$ $\dfrac{12}{3} = \dfrac{3(b)}{3} \Rightarrow \boxed{(b)=4}$

20) $\dfrac{6}{2} = \dfrac{m}{6}$ $\quad 3(m) = 6 \times 6$ $\dfrac{2(m)}{2} = \dfrac{36}{2} = (m) = 18$

21) $\dfrac{3}{2} = \dfrac{6}{m}$ $\quad 7(K) = 2(M)$ $\dfrac{4(2)}{2} = \dfrac{2}{2}(M) = 21(M) \Rightarrow \boxed{M=21}$ $7 \times 3 = 2((K)$ $\dfrac{21}{21} = \dfrac{2((K)}{21} = 1 = K \Rightarrow \boxed{K=1}$

22) $\dfrac{2}{7} = \dfrac{b}{14}$ $\quad 7(b) = 14 \times 2$ $\dfrac{7(b)}{7} = \dfrac{28}{7} \Rightarrow \boxed{b=4}$ $2 \times 4 = 7(a)$ $\dfrac{2 \cdot 8}{7} = \dfrac{7(a)}{7} = 4(b) \Rightarrow \boxed{b=7}$

23) $\dfrac{3}{5} = \dfrac{K}{6}$ $\quad 6 \times 7 = 5(K)$ $\dfrac{42}{5} = \dfrac{5(K)}{5} = 5 \times 5 = 5(K) \Rightarrow \boxed{K=35}$

24) $\dfrac{x}{7} = \dfrac{6}{3}$ $\quad 7 \times 6 = 3(x)$ $\dfrac{42}{3} = \dfrac{3(x)}{3} \Rightarrow \boxed{x=14}$