

Determine if the following represent equivalent ratios. Be sure to SHOW WORK!

1. $12:16$ and $9:12$
2. $6:14$ and $10:18$

3. 16 out of 28 student own pets; 240 out of 560 own pets

4. There are 35 boys in the 6th grade. The number of girls in the 6th grade is 42. Lonnie says that means the ratio of number of boys in the 6th grade to the numbers of girls in the 6th grade is 5 : 7. Is Lonnie correct?

5. Jade enlarged the photograph at the right to a poster. The size of the poster is 60 inches by 100 inches. Is the ratio of the poster's length and width equivalent to the ratio of the photograph's length and width?



5 in.

3 in.

6. The ratio of girls to boys in the junior high band is 3 to 4. Which of these shows possible numbers of the girls and boys in the band?
- Ⓐ 30 girls, 44 boys Ⓒ 22 girls, 28 boys
Ⓑ 27 girls, 36 boys Ⓓ 36 girls, 50 boys
7. The track team at your school has 6 sprinters and 8 distance runners. The ratios 3 : 4, 24 : 33, 12 : 16, and 6 : 8 show the ratio of sprinters to distance runners at other schools. Which ratios are equivalent to the ratio for your school? Check all that apply.
- A. 6 : 8 C. 24 : 33
 B. 3 : 4 D. 12 : 16
8. **Error Analysis** A survey of 25 people found that 15 had the same Internet service provider. The survey reported this information as the ratio of 15 : 25. Reports about the survey used the ratios 3 : 5, 9 : 15, 18 : 30, and 21 : 31 to describe the results.
- a) Which ratio is not equivalent to the ratio 15 : 25?
- A. 21 : 31 C. 18 : 30
 B. 3 : 5 D. 9 : 15
- b) What was the error?
- A. The same number was not added to or subtracted from the terms of the original ratio.
 B. The terms have a common factor greater than 1.
 C. The terms of the ratio are reversed.
 D. The terms of the original ratio were not multiplied or divided by the same number.
9. A small business makes ceramic figures. Some figures come out of the mold ready for painting. Other figures first need to have rough edges smoothed. Yesterday, the ratio of figures that were ready for painting to figures that needed smoothing was 3 : 7. Which numbers are possible for yesterday's production at the factory?
- A. 28 ready, 24 needed smoothing
 B. 24 ready, 28 needed smoothing
 C. 42 ready, 18 need smoothing
 D. 18 ready, 42 need smoothing

Determine if the following represent equivalent ratios. Be sure to SHOW WORK!

1. 12:16 and 9:12

Cross Products



$$144 = 144$$

Yes!

2.

6:14 and 10:18

Reduce

$$3:7 \quad 5:9$$

NO!

3. 16 out of 28 student own pets; 240 out of 560 own pets

$$\begin{array}{cc} \div 4 \downarrow & \div 4 \downarrow \\ 4 : 7 & \text{Reduce} \\ \div 80 \downarrow & \div 80 \downarrow \\ 3 : 7 & \end{array}$$

No!

4. There are 35 boys in the 6th grade. The number of girls in the 6th grade is 42. Lonnie says that means the ratio of number of boys in the 6th grade to the numbers of girls in the 6th grade is 5 : 7. Is Lonnie correct?

$$\div 7 \left(\begin{array}{l} 35 : 42 \\ 5 : 7 \end{array} \right) \div 6$$

No Lonnie is incorrect

5. Jade enlarged the photograph at the right to a poster. The size of the poster is 60 inches by 100 inches. Is the ratio of the poster's length and width equivalent to the ratio of the photograph's length and width?



3 in.

5 in.

$$\begin{array}{cc} \times 20 \downarrow & \times 20 \downarrow \\ 3 : 5 & \\ 60 : 100 & \end{array}$$

Yes the ratios are equivalent

6. The ratio of girls to boys in the junior high band is 3 to 4. Which of these shows possible numbers of the girls and boys in the band?

- (A) 30 girls, 44 boys (C) 22 girls, 28 boys
(B) 27 girls, 36 boys (D) 36 girls, 50 boys

Reduce

$$30:44 \rightarrow 15:22$$
$$27:36 \rightarrow 3:4$$
$$22:28 \rightarrow 11:14$$
$$36:50 \rightarrow 18:25$$

7. The track team at your school has 6 sprinters and 8 distance runners. The ratios 3 : 4, 24 : 33, 12 : 16, and 6 : 8 show the ratio of sprinters to distance runners at other schools. Which ratios are equivalent to the ratio for your school? Check all that apply.

- A. 6 : 8
 B. 3 : 4

$\times 4 \downarrow (6:8) \rightarrow \text{NOT } \times 4$
 C. 24 : 33
 D. 12 : 16
 $\div 2 \downarrow (6:8) \rightarrow \div 2$

8. **Error Analysis** A survey of 25 people found that 15 had the same Internet service provider. The survey reported this information as the ratio of 15 : 25. Reports about the survey used the ratios 3 : 5, 9 : 15, 18 : 30, and 21 : 31 to describe the results.

a) Which ratio is not equivalent to the ratio 15 : 25? = $3:5$

- A. 21 : 31 C. 18 : 30 = $3:5$
 B. 3 : 5 D. 9 : 15 = $3:5$

b) What was the error?

- A. The same number was not added to or subtracted from the terms of the original ratio.
 B. The terms have a common factor greater than 1.
 C. The terms of the ratio are reversed.
 D. The terms of the original ratio were not multiplied or divided by the same number.

9. A small business makes ceramic figures. Some figures come out of the mold ready for painting. Other figures first need to have rough edges smoothed. Yesterday, the ratio of figures that were ready for painting to figures that needed smoothing was 3 : 7. Which numbers are possible for yesterday's production at the factory?

- A. 28 ready, 24 needed smoothing
 B. 24 ready, 28 needed smoothing
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$\div 6 \quad 3 : 7 \rightarrow 18 : 42$