PREALG: Fractions and Decimals

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Name: _____ Date: _____ Score: / 30

Learning Objectives

- Add and subtract fractions with unlike denominators
- Multiply and divide fractions and mixed numbers
- Convert between fractions, decimals, and percents
- Simplify fractions to lowest terms

Simplify each expression completely. Show all steps and circle your final answer.

Adding fractions

1. Add the fractions and simplify: 1/2 + 3/3.

$$\frac{1}{2} + \frac{3}{3}$$

Answer: _____

2. A recipe calls for 1/4 cup of flour and 3/3 cup of sugar. How much total dry ingredient is needed?

$$\frac{1}{4} + \frac{3}{3}$$

Answer: _____

3. Add: 4/7 + 5/8. Simplify your answer completely.

$$\frac{4}{7} + \frac{5}{8}$$

Answer: _____

4. Add the fractions and simplify: 2/5 + 5/4.

$$\frac{2}{5} + \frac{5}{4}$$

Answer: _____

5. A recipe calls for 1/3 cup of flour and 1/4 cup of sugar. How much total dry ingredient is needed?

$$\frac{1}{3} + \frac{1}{4}$$

Answer: _____

6. Add: 5/3 + 4/8. Simplify your answer completely.

$$\frac{5}{3}+\frac{4}{8}$$

Answer: _____

7. Add the fractions and simplify: 1/4 + 4/3.

$$\frac{1}{4}+\frac{4}{3}$$

Answer: _____

8. A recipe calls for 1/2 cup of flour and 2/5 cup of sugar. How much total dry ingredient is needed?

$$\frac{1}{2}+\frac{2}{5}$$

Answer: _____

9. Add: 4/8 + 5/3. Simplify your answer completely.

$$\frac{4}{8}+\frac{5}{3}$$

Answer: _____

Dividing fractions

10. Divide the fractions: 3/5 div 4/4. Use Keep-Change-Flip.

$$\frac{3}{5}\div\frac{4}{4}$$

Answer: _____

11. Divide: 1/5 / 1/6. (Keep the first fraction, Change division to multiplication, Flip the second fraction.)

$$\frac{1}{5}\div\frac{1}{6}$$

Answer: _____

12. You have 4/3 of a pizza. If each serving is 2/8 of the whole pizza, how many servings do you have?

$$\frac{4}{3}\div\frac{2}{8}$$

Answer: _____

13. Divide the fractions: 1/4 div 5/6. Use Keep-Change-Flip.

$$\frac{1}{4} \div \frac{5}{6}$$

Answer: _____

14. Divide: 5/3 / 2/7. (Keep the first fraction, Change division to multiplication, Flip the second fraction.)

$$\frac{5}{3} \div \frac{2}{7}$$

Answer: _____

15. You have 3/3 of a pizza. If each serving is 3/7 of the whole pizza, how many servings do you have?

$$\frac{3}{3} \div \frac{3}{7}$$

Answer: _____

16. Divide the fractions: 6/2 div 1/8. Use Keep-Change-Flip.

$$\frac{6}{2} \div \frac{1}{8}$$

Answer: _____

17. Divide: 1/4 / 6/5. (Keep the first fraction, Change division to multiplication, Flip the second fraction.)

$$\frac{1}{4} \div \frac{6}{5}$$

Answer: _____

18. You have 4/3 of a pizza. If each serving is 2/5 of the whole pizza, how many servings do you have?

$$\frac{4}{3} \div \frac{2}{5}$$

Answer: _____

Multiplying fractions

19. Multiply the fractions and simplify: 5/4 x 2/6.

$$\frac{5}{4} \times \frac{2}{6}$$

Answer: _____

20. Multiply: 1/4 x 4/3. Simplify your answer.

$$\frac{1}{4} \times \frac{4}{3}$$

Answer: _____

21. A recipe calls for 2/3 cup of sugar. If you are making 2/4 of the recipe, how many cups of sugar do you need?

$$\frac{2}{3} \times \frac{2}{4}$$

Answer: _____

22. Multiply the fractions and simplify: 3/4 x 5/3.

$$\frac{3}{4} \times \frac{5}{3}$$

Answer: _____

23. Multiply: 4/3 x 5/4. Simplify your answer.

$$\frac{4}{3} \times \frac{5}{4}$$

Answer: _____

24. A recipe calls for 3/2 cup of sugar. If you are making 1/2 of the recipe, how many cups of sugar do you need?

$$\frac{3}{2} \times \frac{1}{2}$$

Answer: _____

Simplifying fractions

25. Simplify the fraction 6/12 to lowest terms.

$$\frac{6}{12}$$

Answer: _____

26. A class has 16 students present out of 12 enrolled. Write this fraction in lowest terms.

$$\frac{16}{12}$$

Answer: _____

27. Simplify 35/15. Is the result a proper fraction, an improper fraction, or a whole number?

$$\frac{35}{15}$$

Answer: _____

28. Simplify the fraction 16/36 to lowest terms.

$$\frac{16}{36}$$

Answer: _____

29. A class has 20 students present out of 12 enrolled. Write this fraction in lowest terms.

$$\frac{20}{12}$$

Answer: _____

30. Simplify 24/16. Is the result a proper fraction, an improper fraction, or a whole number?

$$\frac{24}{16}$$

Answer: _____

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ANSWER KEY & SOLUTIONS

Topics: Adding fractions, Multiplying fractions, Simplifying fractions, Dividing fractions. All answers verified by independent computation.

Solutions

Adding fractions

1. Add the fractions and simplify: 1/2 + 3/3.

$$\frac{1}{2} + \frac{3}{3}$$

→ *Find a common denominator, then add numerators. Simplify if possible.*
→ *Result: 3/2.*

Answer: = 3/2

2. A recipe calls for 1/4 cup of flour and 3/3 cup of sugar. How much total dry ingredient is needed?

$$\frac{1}{4} + \frac{3}{3}$$

→ *Total = 1/4 + 3/3 = 5/4 cups.*

Answer: = 5/4

3. Add: 4/7 + 5/8. Simplify your answer completely.

$$\frac{4}{7} + \frac{5}{8}$$

→ *Find the LCD of 7 and 8: LCD = 56.*
→ *Rewrite each fraction with denominator 56.*
→ *Add numerators and simplify: 67/56.*

Answer: = 67/56

4. Add the fractions and simplify: 2/5 + 5/4.

$$\frac{2}{5} + \frac{5}{4}$$

→ *Find a common denominator, then add numerators. Simplify if possible.*
→ *Result: 33/20.*

Answer: = 33/20

5. A recipe calls for 1/3 cup of flour and 1/4 cup of sugar. How much total dry ingredient is needed?

$$\frac{1}{3} + \frac{1}{4}$$

→ *Total = 1/3 + 1/4 = 7/12 cups.*

Answer: = 7/12

6. Add: 5/3 + 4/8. Simplify your answer completely.

$$\frac{5}{3} + \frac{4}{8}$$

→ *Find the LCD of 3 and 8: LCD = 24.*
→ *Rewrite each fraction with denominator 24.*
→ *Add numerators and simplify: 13/6.*

Answer: = 13/6

7. Add the fractions and simplify: 1/4 + 4/3.

$$\frac{1}{4} + \frac{4}{3}$$

→ *Find a common denominator, then add numerators. Simplify if possible.*
→ *Result: 19/12.*

Answer: $= 19/12$

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8. A recipe calls for 1/2 cup of flour and 2/5 cup of sugar. How much total dry ingredient is needed?

$$\frac{1}{2} + \frac{2}{5}$$

→ *Total = 1/2 + 2/5 = 9/10 cups.*

Answer: $= 9/10$

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9. Add: 4/8 + 5/3. Simplify your answer completely.

$$\frac{4}{8} + \frac{5}{3}$$

→ *Find the LCD of 8 and 3: LCD = 24.*
→ *Rewrite each fraction with denominator 24.*
→ *Add numerators and simplify: 13/6.*

Answer: $= 13/6$

Dividing fractions

10. Divide the fractions: 3/5 div 4/4. Use Keep-Change-Flip.

$$\frac{3}{5} \div \frac{4}{4}$$

→ *Keep 3/5, Change div to x, Flip 4/4 to 4/4.*
→ *= 3/5 x 4/4. Simplify: 3/5.*

Answer: = 3/5

11. Divide: 1/5 / 1/6. (Keep the first fraction, Change division to multiplication, Flip the second fraction.)

$$\frac{1}{5} \div \frac{1}{6}$$

→ *Keep-Change-Flip: 1/5 x 6/1.*
→ *Multiply and simplify: 6/5.*

Answer: = 6/5

12. You have 4/3 of a pizza. If each serving is 2/8 of the whole pizza, how many servings do you have?

$$\frac{4}{3} \div \frac{2}{8}$$

→ *Divide: 4/3 / 2/8.*
→ *Keep-Change-Flip: 4/3 x 8/2.*
→ *Simplify: 16/3 servings.*

Answer: = 16/3

13. Divide the fractions: 1/4 div 5/6. Use Keep-Change-Flip.

$$\frac{1}{4} \div \frac{5}{6}$$

→ *Keep 1/4, Change div to x, Flip 5/6 to 6/5.*
→ *= 1/4 x 6/5. Simplify: 3/10.*

Answer: = 3/10

14. Divide: 5/3 / 2/7. (Keep the first fraction, Change division to multiplication, Flip the second fraction.)

$$\frac{5}{3} \div \frac{2}{7}$$

→ *Keep-Change-Flip: 5/3 x 7/2.*
→ *Multiply and simplify: 35/6.*

Answer: = 35/6

15. You have 3/3 of a pizza. If each serving is 3/7 of the whole pizza, how many servings do you have?

$$\frac{3}{3} \div \frac{3}{7}$$

→ *Divide: 3/3 / 3/7.*
→ *Keep-Change-Flip: 3/3 x 7/3.*
→ *Simplify: 7/3 servings.*

Answer: = 7/3

16. Divide the fractions: 6/2 div 1/8. Use Keep-Change-Flip.

$$\frac{6}{2} \div \frac{1}{8}$$

→ *Keep 6/2, Change div to x, Flip 1/8 to 8/1.*
→ *= 6/2 x 8/1. Simplify: 24.*

Answer: $= 24$

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17. Divide: 1/4 / 6/5. (Keep the first fraction, Change division to multiplication, Flip the second fraction.)

$$\frac{1}{4} \div \frac{6}{5}$$

→ *Keep-Change-Flip: 1/4 x 5/6.*
→ *Multiply and simplify: 5/24.*

Answer: $= 5/24$

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18. You have 4/3 of a pizza. If each serving is 2/5 of the whole pizza, how many servings do you have?

$$\frac{4}{3} \div \frac{2}{5}$$

→ *Divide: 4/3 / 2/5.*
→ *Keep-Change-Flip: 4/3 x 5/2.*
→ *Simplify: 10/3 servings.*

Answer: $= 10/3$

Multiplying fractions

19. Multiply the fractions and simplify: 5/4 x 2/6.

$$\frac{5}{4} \times \frac{2}{6}$$

→ *Multiply numerators: 5 x 2 = 10.*
→ *Multiply denominators: 4 x 6 = 24.*
→ *Simplify 10/24: 5/12.*

Answer: $\frac{10}{24} = 5/12$

20. Multiply: 1/4 x 4/3. Simplify your answer.

$$\frac{1}{4} \times \frac{4}{3}$$

→ *Multiply numerators: 1 x 4 = 4.*
→ *Multiply denominators: 4 x 3 = 12.*
→ *Simplify 4/12: 1/3.*

Answer: $\frac{4}{12} = 1/3$

21. A recipe calls for 2/3 cup of sugar. If you are making 2/4 of the recipe, how many cups of sugar do you need?

$$\frac{2}{3} \times \frac{2}{4}$$

→ *Multiply the fractions: 2/3 x 2/4.*
→ *Numerator: 2 x 2 = 4. Denominator: 3 x 4 = 12.*
→ *Simplify: 1/3 cups.*

Answer: $\frac{4}{12} = 1/3$

22. Multiply the fractions and simplify: 3/4 x 5/3.

$$\frac{3}{4} \times \frac{5}{3}$$

→ *Multiply numerators: 3 x 5 = 15.*
→ *Multiply denominators: 4 x 3 = 12.*
→ *Simplify 15/12: 5/4.*

Answer: $\frac{15}{12} = 5/4$

23. Multiply: 4/3 x 5/4. Simplify your answer.

$$\frac{4}{3} \times \frac{5}{4}$$

→ *Multiply numerators: 4 x 5 = 20.*
→ *Multiply denominators: 3 x 4 = 12.*
→ *Simplify 20/12: 5/3.*

Answer: $\frac{20}{12} = 5/3$

24. A recipe calls for 3/2 cup of sugar. If you are making 1/2 of the recipe, how many cups of sugar do you need?

$$\frac{3}{2} \times \frac{1}{2}$$

→ *Multiply the fractions: 3/2 x 1/2.*
→ *Numerator: 3 x 1 = 3. Denominator: 2 x 2 = 4.*
→ *Simplify: 3/4 cups.*

Answer: $\frac{3}{4} = 3/4$

Simplifying fractions

25. Simplify the fraction 6/12 to lowest terms.

$$\frac{6}{12}$$

→ *Find the GCF of 6 and 12. The GCF is 3.*
→ *Divide numerator and denominator by 3: 6 / 3 = 2 and 12 / 3 = 4.*
→ *Simplified fraction: 2/4.*

Answer: $= \frac{6 \div 3}{12 \div 3} = 2/4$

26. A class has 16 students present out of 12 enrolled. Write this fraction in lowest terms.

$$\frac{16}{12}$$

→ *Write the fraction: 16/12.*
→ *Find the GCF of 16 and 12: GCF = 4.*
→ *Divide both by 4: 4/3.*

Answer: $= \frac{16 \div 4}{12 \div 4} = 4/3$

27. Simplify 35/15. Is the result a proper fraction, an improper fraction, or a whole number?

$$\frac{35}{15}$$

→ *Find the GCF of 35 and 15: GCF = 5.*
→ *Divide: 35/5 = 7, 15/5 = 3.*
→ *Simplified: 7/3. Since the numerator is larger than the denominator, this is an improper fraction.*

Answer: $= \frac{35 \div 5}{15 \div 5} = 7/3$

28. Simplify the fraction 16/36 to lowest terms.

$$\frac{16}{36}$$

→ *Find the GCF of 16 and 36. The GCF is 4.*
→ *Divide numerator and denominator by 4: 16 / 4 = 4 and 36 / 4 = 9.*
→ *Simplified fraction: 4/9.*

Answer: $= \frac{16 \div 4}{36 \div 4} = 4/9$

29. A class has 20 students present out of 12 enrolled. Write this fraction in lowest terms.

$$\frac{20}{12}$$

→ *Write the fraction: 20/12.*
→ *Find the GCF of 20 and 12: GCF = 4.*
→ *Divide both by 4: 5/3.*

Answer: $= \frac{20 \div 4}{12 \div 4} = 5/3$

30. Simplify 24/16. Is the result a proper fraction, an improper fraction, or a whole number?

$$\frac{24}{16}$$

→ *Find the GCF of 24 and 16: GCF = 4.*
→ *Divide: 24/4 = 6, 16/4 = 4.*
→ *Simplified: 6/4. Since the numerator is larger than the denominator, this is an improper fraction.*

Answer: $= \frac{24 \div 4}{16 \div 4} = 6/4$