Year 8 fractions worksheet

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Name: _____ Date: _____

Question 1

Write 84/126 in simplest form.

Answer: _____

Question 2

Find ⅔ + ¾. Give your answer as a mixed number.

Answer: _____

Question 3

Evaluate:

(a) -⅔ - (-⅚)

(b) -¾ × (-8/9)

Answer: _____

Question 4

Find the missing numbers to make the fractions equivalent:

⅜ = (□)/(40) = (27)/(□)

Answer: _____

Question 5

Find 3½ - 1⅘.

Answer: _____

Question 6

Evaluate each expression.

(a) -1½ + ⅖

(b) (-⅖) ÷ (-4/15)

(c) (-½)³

Answer: _____

Question 7

(a) Write 43/7 as an improper fraction.

(b) Write 47/6 as a mixed number.

Answer: _____

Question 8

Find 2⅔ × 1⅛.

Answer: _____

Question 9

Find -⅚ + ¼.

Answer: _____

Question 10

Write these fractions in ascending order:

¾, ⅝, 7/12, ⅔

Answer: _____

Year 8 fractions: answers and worked solutions

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Question 1

Key idea: Divide the numerator and denominator by their highest common factor.

1. $84 = 2^2 \times 3 \times 7$ and $126 = 2 \times 3^2 \times 7$, so the HCF is $2 \times 3 \times 7 = 42$ 2. $(84 \div 42)/(126 \div 42) = \frac{2}{3}$

Answer: $\frac{2}{3}$

Question 2

Key idea: To add fractions, first write them with a common denominator.

1. The LCD of 3 and 4 is 12 2. 8/12 + 9/12 = 17/12 3. 17/12 = 15/12

Answer: 15/12

Question 3

Key idea: Subtracting a negative is the same as adding its opposite. The product of two negative numbers is positive.

1. (a) $-\frac{2}{3} + \frac{5}{6} = -4/6 + \frac{5}{6} = \frac{1}{6}$ 2. (b) The signs are the same, so the answer is positive: $\frac{3}{4} \times 8/9 = 24/36 = \frac{2}{3}$

Answer: (a) $\frac{1}{6}$ (b) $\frac{2}{3}$

Question 4

Key idea: Equivalent fractions are made by multiplying the numerator and denominator by the same number.

1. $8 \times 5 = 40$, so the numerator is $3 \times 5 = 15$ 2. $3 \times 9 = 27$, so the denominator is $8 \times 9 = 72$

Answer: $\frac{3}{8} = 15/40 = 27/72$

Question 5

Key idea: Convert mixed numbers to improper fractions, then use a common denominator.

1. $3\frac{1}{2} = 7/2$ and $1\frac{4}{5} = 9/5$ 2. 35/10 - 18/10 = 17/10 3. 17/10 = 17/10

Answer: 17/10

Question 6

Key idea: Use the integer sign rules with fractions: same signs give a positive product or quotient, different signs give a negative one.

1. (a) -3/2 + ⅖ = -15/10 + 4/10 = -11/10 = -11/10 2. (b) Both negative, so the answer is positive: ⅖ × 15/4 = 30/20 = 3/2 = 1½ 3. (c) (-½) × (-½) × (-½): three negatives give a negative, so the answer is -⅛

Answer: (a) -11/10 (b) 1½ (c) -⅛

Question 7

Key idea: A whole number of 1 equals 7/7 sevenths or 6/6 sixths, so convert using multiplication and division.

1. (a) 4 × 7 + 3 = 31, so 43/7 = 31/7 2. (b) 47 ÷ 6 = 7 remainder 5, so 47/6 = 7⅚

Answer: (a) 31/7 (b) 7⅚

Question 8

Key idea: Convert to improper fractions, cancel common factors, then multiply numerators and denominators.

1. 2⅔ = 8/3 and 1⅛ = 9/8 2. 8/3 × 9/8 = 1/1 × 3/1 (cancel 8, and 9 with 3) 3. = 3

Answer: 3

Question 9

Key idea: Use a common denominator of 12.

1. -⅚ = -10/12 and ¼ = 3/12 2. -10/12 + 3/12 = -7/12

Answer: -7/12

Question 10

Key idea: Write each fraction with the lowest common denominator, then compare numerators.

1. The LCD of 4, 8, 12, 3 is 24 2. ¾ = 18/24, ⅝ = 15/24, 7/12 = 14/24, ⅔ = 16/24 3. In order of numerators: 14, 15, 16, 18

Answer: 7/12, ⅝, ⅔, ¾