SCORE

Algebra
With Classified
answer book

8

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19- Algebraic Fractions

1. Simplify fully $\dfrac{3x - 12xy}{3x}$

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2. Express as a single fraction $\dfrac{10y - 12xy}{2y}$

....

3. Express as a single fraction $\dfrac{12b - 18ab}{6b}$

....

4. Express as a single fraction $\dfrac{4ab - 10b}{2b}$

....

5. Simplify. $\dfrac{4p - 12pq}{4p}$

....

6. Express as a single fraction $\dfrac{10\,y - 6}{2}$

....

7. Simplify. $\dfrac{4n+12}{6}$

....

8. Simplify each expression.

a $\quad \dfrac{x}{3} + \dfrac{x}{3} = $ ___

c $\quad \dfrac{2y}{7} + \dfrac{3y}{7} = $

b $\quad \dfrac{x}{5} + \dfrac{2x}{5} = $

d $\quad \dfrac{y}{8} + \dfrac{3y}{8} = $ ___ $=$

9. Write the answers to these calculations.

a $\quad \dfrac{x}{4} + \dfrac{3x}{8} = \dfrac{\square}{\square}$

b $\quad \dfrac{y}{3} + \dfrac{2y}{9} = \dfrac{\square}{\square}$

c $\quad \dfrac{2p}{3} - \dfrac{p}{6} = \dfrac{\square}{\square}$

d $\quad \dfrac{11b}{12} - \dfrac{b}{6} = \dfrac{\square}{\square}$

f $\quad \dfrac{y}{3} - \dfrac{y}{6}$

g $\quad \dfrac{2y}{3} - \dfrac{4y}{9}$

10. Evan thinks the expression $\dfrac{7x-14}{7}+\dfrac{8x+6}{2}$ simplifies to $5x + 1$.
Is Evan correct? Show your working.

11. a. Show that the fraction $\dfrac{8x + 24}{4}$ can be simplified to $2x + 6$ or $2(x + 3)$.

b. Simplify these fractions. Write two expressions for each answer; one with brackets and one without brackets.

i $\dfrac{6x + 12}{3}$

ii $\dfrac{15x + 45}{5}$

12. Annie is calculating with algebraic fractions.

I can work out $\frac{1}{k} + \frac{1}{k}$ because the denominator is the same, so $\frac{1}{k} + \frac{1}{k} = \frac{1+1}{k} = \frac{2}{k}$

Use Annie's method to complete the calculations.

a) $\frac{3}{m} + \frac{4}{m} =$

c) $\frac{1}{p} - \frac{4}{p} =$

b) $\frac{12}{n} - \frac{5}{n} =$

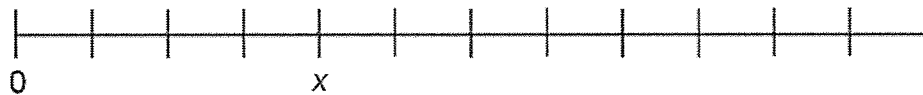13. Here is an algebraic expression.

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

a) Write the expression as a single fraction.

b) Evaluate the expression when $r = 2$

c) For what value of r is $\frac{4}{r} + \frac{2}{r} > 1$?

14 The number line shows 0 and x.

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0              x
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Position the expressions on the number line.

Write a simplified fraction where required.

a) $2x$

c) $\dfrac{x}{4}$

e) $2x - \dfrac{3x}{4} =$

b) $\dfrac{x}{2}$

d) $\dfrac{x}{2} + \dfrac{x}{4} =$

f) $x + \dfrac{x}{2} =$

15. a) A sequence starts at zero and goes up by $\dfrac{a}{5}$ each term.
    Write the first five terms of the sequence.

b) Another sequence starts at zero and goes up by $\dfrac{2a}{5}$ each term.
    Write the first five terms of this sequence.