Regents Exam Questions
A.APR.D.7: Addition and Subtraction of Rationals 2b www.jmap.org

## A.APR.D.7: Addition and Subtraction of Rationals 2b

1 What is the least common denominator of $\frac{1}{2}, \frac{2}{7 x}$, and $\frac{5}{x}$ ?

2 What is the sum of $\frac{2}{x}$ and $\frac{x}{2}$ ?

3 The sum of $\frac{3}{x}+\frac{2}{5}, x \neq 0$, is
4 The reciprocal of the expression $\frac{2}{x}+\frac{3}{1}$ is
5 The expression $\frac{y}{x}-\frac{1}{2}$ is equivalent to

6 Which expression is equivalent to $\frac{a}{x}+\frac{b}{2 x}$ ?
7 What is the sum of $\frac{3}{7 n}$ and $\frac{7}{3 n}$ ?
8 Expressed as a single fraction, $\frac{3}{4 x}-\frac{2}{5 x}$ is equal to
9 Expressed in simplest form, $\frac{5 x+3}{x}-\frac{x-1}{2 x}$ is
10 Which expression is equivalent to $\frac{x^{3}}{x+3}-\frac{9 x}{x+3}$ ?
11 What is the sum of $(y-5)+\frac{3}{y+2}$ ?
12 Expressed as a single fraction, what is
$\frac{1}{x+1}+\frac{1}{x}, x \neq 0,-1$ ?

13 The expression $\frac{x}{x-1}+\frac{x}{x+1}$ is equivalent to

14 Expressed as a single fraction, $\frac{3}{x-1}-\frac{2}{x}$ is equivalent to

15 Expressed as a single fraction, $\frac{5}{x-3}-\frac{1}{x}$ is equivalent to

16 The expression $\frac{6}{y-5}-\frac{y+5}{y^{2}-25}$ is equivalent to
17 What is the sum of $\frac{3}{x-3}$ and $\frac{x}{3-x}$ ?
18 For all values of $b$ for which the expressions are defined, $\frac{b^{2}}{b-3}+\frac{9}{3-b}$ is equivalent to

19 The expression $\frac{2}{\sin x}-\frac{5}{\sin x-1}$ is equivalent to

20 If the probability that an event will occur is $\frac{x}{y}$, then the probability that the event will not occur is

21 If the probability that an event will occur is $\frac{1}{x+1}$, then the probability that the event will not occur is

22 If the probability that an event will not occur is $\frac{1}{x^{2}}$, then the probability that the event will occur is represented by

## A.APR.D.7: Addition and Subtraction of Rationals 2b

## Answer Section

1 ANS:
14x
The LCM of 2 and 7 is 14 . The LCM of $x$ and $x$ is $x$. The LCD is $14 x$.
REF: 060412a
2 ANS:
$\frac{4+x^{2}}{2 x}$
$\frac{(2 \times 2)+(x \times x)}{(x)(2)}=\frac{4+x^{2}}{2 x}$
REF: 010423a
3 ANS:
$\frac{2 x+15}{5 x}$
$\frac{(3 \times 5)+(x \times 2)}{(x)(5)}=\frac{15+2 x}{5 x}=\frac{2 x+15}{5 x}$
REF: 080207a
4 ANS:
$\frac{x}{2+3 x}$
REF: 060327siii
5 ANS:
$\frac{2 y-x}{2 x}$
$\frac{(2 \times y)-(1 \times x)}{(x)(2)}=\frac{2 y-x}{2 x}$
REF: 010016a
6 ANS:
$\frac{2 a+b}{2 x}$
$\frac{(a \times 2 x)+(x \times b)}{(x)(2 x)}=\frac{2 a x+b x}{2 x^{2}}=\frac{x(2 a+b)}{2 x^{2}}=\frac{2 a+b}{2 x}$
REF: 089911a

7 ANS:
$\frac{58}{21 n}$
$\frac{3}{7 n}+\frac{7}{3 n}=\frac{9 n+49 n}{21 n^{2}}=\frac{58 n}{21 n^{2}}=\frac{58}{21 n}$
REF: 060727a
8 ANS:
$\frac{7}{20 x}$
$\frac{3}{4 x}-\frac{2}{5 x}=\frac{15 x-8 x}{20 x^{2}}=\frac{7 x}{20 x^{2}}=\frac{7}{20 x}$
REF: 010921a
9 ANS:
$\frac{9 x+7}{2 x}$
REF: 010118siii
10 ANS:
$x(x-3)$
REF: 010218siii
11 ANS:
$\frac{y^{2}-3 y-7}{y+2}$
$\frac{(y-5)(y+2)+1 \times 3}{y+2}=\frac{y^{2}+2 y-5 y-10+3}{y+2}=\frac{y^{2}-3 y-7}{y+2}$
REF: 080505b
12 ANS:
$\frac{2 x+1}{x^{2}+x}$
$\frac{(1 \times x)+((x+1) \times 1)}{(x+1)(x)}=\frac{x+x+1}{x^{2}+x}=\frac{2 x+1}{x^{2}+x}$
REF: 069906a
13 ANS:
$\frac{2 x^{2}}{x^{2}-1}$
REF: 068421b

14 ANS:
$\frac{x+2}{x(x-1)}$
REF: 018734siii
15 ANS:
$\frac{4 x+3}{x^{2}-3 x}$
REF: 089919siii
16 ANS:
$\frac{5}{y-5}$
$\frac{6}{y-5}-\frac{y+5}{y^{2}-25}=\frac{6}{y-5}-\frac{y+5}{(y+5)(y-5)}=\frac{6}{y-5}-\frac{1}{y-5}=\frac{5}{y-5}$
REF: 080805b
17 ANS:
-1
$\frac{3}{x-3}+\frac{-x}{x-3}=\frac{3-x}{x-3}=-1$
REF: 010315b
18 ANS:
$b+3$
REF: 088931siii
19 ANS:
$\frac{-3 \sin x-2}{\sin x(\sin x-1)}$
$\frac{2}{\sin x}-\frac{5}{\sin x-1}=\frac{2(\sin x-1)-5 \sin x}{\sin x(\sin x-1)}=\frac{2 \sin x-2-5 \sin x}{\sin x(\sin x-1)}=\frac{-3 \sin x-2}{\sin x(\sin x-1)}$
REF: 060816b
20 ANS:
$\frac{y-x}{y}$
REF: 088619siii
21 ANS:
$\frac{x}{x+1}$

REF: 068522siii

22 ANS:
$\frac{x^{2}-1}{x^{2}}$
REF: 088523siii

