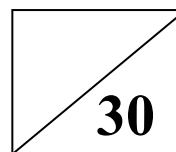




FAIRFIELD METHODIST SCHOOL (SECONDARY)

102 Dover Road Singapore 139649 tel (65) 6778 8702 fax (65) 6779 7482 fmss@moe.edu.sg www.fairfieldsec.org



**Mathematics Department 2024
Secondary One G3 (Mathematics)**

Name: _____ **Date:** _____

Teaching Group: _____ **Class:** 1 _____ **Register Number:** _____ **Type:** Term 3
Timed Practice

Topics:

Chapter 5 – Simple Equations in One Variable

Chapter 8 – Ratio, Rate and Speed

Parent's or Guardian's Signature: _____

Duration: 50 minutes

Instructions

1. Answer all the questions on the space given.
2. The use of calculators is allowed.
3. Omission of essential working will result in loss of marks.
4. If the degree of accuracy is not specified in the question, and if the answer is not exact, give the answer correct to three significant figures.
5. This question paper consists of 6 printed pages.

1 Solve $3(3a + 1) = 5 + 4a$.

Answer a = [2]

2 Solve each of the following equations.

(a) $1 - \frac{3}{4}x = x - 27$,

Answer x = [2]

2 (b) $\frac{2y-5}{6} + \frac{y-1}{2} = \frac{1}{3},$

Answer y = [3]

(c) $\frac{4}{3m+2} = \frac{6}{5m+1}.$

Answer m = [3]

- 3 Half the sum of $3x$ and 5 is equal to the result of 5 subtracted from $4x$.

(a) Write down an algebraic equation to represent this statement.

Answer [1]

(b) Hence, solve for x .

Answer $x =$ [2]

-
- 4 The conversion formula between f degree Fahrenheit ($^{\circ}\text{F}$) and c degree Celsius ($^{\circ}\text{C}$) is given by

$$c = \frac{5}{9}(f - 32).$$

Stuart's body temperature is 38°C . Find his body temperature in $^{\circ}\text{F}$.

Answer $^{\circ}\text{F}$ [2]

- 5** Maryann spent a total of \$18 on 3 notebooks, 4 pens and 2 rulers. Each notebook costs 4 times the cost of a pen, and \$3 more than a ruler. If the cost of each notebook was \$ x ,
(a) form an equation in x , and solve for x ,

Answer $x =$ [2]

- (b)** find how much Maryann spent on the 2 rulers.

Answer \$ [1]

-
- 6** Express

- (a)** 230 m/s in km/h,

Answer km/h [1]

- (b)** 4 l/min to ml/s.

Answer ml/s [1]

- 7 (a) A rope is cut into three parts, p , q and r . Given that $p : q = 4 : 7$ and $q : r = 5 : 2$, find $p : q : r$.

Answer $p : q : r = \dots\dots\dots$ [1]

- (b) If the length of p is 12 cm more than r , find the total length of the original rope.

Answer $\dots\dots\dots$ cm [2]

- 8 Malek, a new employee is given a choice of any of the following rates of pay per week.

	Rate <i>A</i>	Rate <i>B</i>
First 40 hours	\$12 per hour	\$14 per hour
Above 40 hours	\$14 per hour	\$12 per hour

If Malek works 55 hours a week, find

- (a) his pay under Rate *A*,

Answer \$ [1]

- (b) his pay under Rate *B*,

Answer \$ [1]

- (c) which rate would be a better choice? Explain your answer.

Answer

.....

..... [1]

- 9** Mr Chia took 24 minutes to drive from his house to the market at an average speed of 60 km/h.

(a) Find the distance between his house and the market.

Answer km [2]

- (b)** If he increased his average speed by 12 km/h, find the difference in the time taken, in minutes, to travel the same distance.

Answer min [2]

– End of Timed Practice –

Sec 1 G3 Term 3 Timed Practice 2024 Solutions

Qn	Solution
1	$3(3a+1) = 5 + 4a$ $9a + 3 = 5 + 4a$ $9a - 4a = 5 - 3$ $5a = 2$ $a = \frac{2}{5}$
2a	$1 - \frac{3}{4}x = x - 27$ $-x - \frac{3}{4}x = -27 - 1$ $1\frac{3}{4}x = -28$ $x = -28 \div -1\frac{3}{4}$ $x = 16$ Alternative working $1 - \frac{3}{4}x = x - 27$ $\frac{4-3x}{4} = \frac{4x-108}{4}$ $4-3x = 4x-108$ $-3x-4x = -108-4$ $-7x = -112$ $x = \frac{-112}{-7}$ $x = 16$
2b	$\frac{2y-5}{6} + \frac{y-1}{2} = \frac{1}{3}$ $\frac{2y-5}{6} + \frac{3(y-1)}{6} = \frac{2}{6}$ $2y-5+3y-3=2$ $2y+3y=2+5+3$ $5y=10$ $y=2$

Qn	Solution
	Alternative working $\frac{2y-5}{6} + \frac{y-1}{2} = \frac{1}{3}$ $2y-5+3(y-1)=2$ $2y-5+3y-3=2$ $2y+3y=2+5+3$ $5y=10$ $y=2$
2c	$\frac{4}{3m+2} = \frac{6}{5m+1}$ $4(5m+1)=6(3m+2)$ $20m+4=18m+12$ $20m-18m=12-4$ $2m=8$ $m=4$
3(a)	$\frac{1}{2}(3x+5)=4x-5$
3(b)	$\frac{1}{2}(3x+5)=4x-5$ $3x+5=2(4x-5)$ $3x+5=8x-10$ $3x-8x=-10-5$ $-5x=-15$ $x=3$
4	$c = \frac{5}{9}(f-32)$ $38 = \frac{5}{9}(f-32)$ $f-32 = 38 \div \frac{5}{9}$ $f-32 = 68.4$ $f = 68.4 + 32$ $f = 100.4$

Qn	Solution
5a	$3x + 4\left(\frac{1}{4}x\right) + 2(x - 3) = 18$ $3x + x + 2x - 6 = 18$ $6x = 18 + 6$ $x = \frac{24}{6}$ $x = 4$
5b	Spent <u>\$2</u> on the 2 rulers.
6a	$\frac{230}{1000} \times 3600 = 828 \text{ km/h}$
6b	$\frac{4 \times 1000}{60} = 66\frac{2}{3} \text{ or } 66.7 \text{ (to 3 s.f.) ml/s}$
7a	$p : q : r$ $4 \times 5 : 7 \times 5$ $: 5 \times 7 : 2 \times 7$ $20 : 35 : 14$
7b	6 units ---- 12 cm 1 unit ---- 2 cm Total units = $20 + 35 + 14$ $= 69$ Total length = 69×2 $= 138 \text{ cm}$
8a	$(12 \times 40) + (15 \times 14)$ $= \$690$
8b	$(14 \times 40) + (12 \times 15)$ $= \$740$
8c	Rate B is better as it pays more than Rate A.
9a	$60 \times \frac{24}{60}$ $= 24 \text{ km}$
9b	New speed = $60 + 12$ $= 72 \text{ km/h}$ Time taken = $\frac{24}{72}$

Qn	Solution
	$= \frac{1}{3} \text{ h or } 20 \text{ min}$ $\text{Difference} = 24 - 20$ $= 4 \text{ min}$

~ End ~