St Andrew's Academy

Mathematics Department


## COURSE 2 BLOCK 6

PRE-ASSESSMENT
LEARNING EVALUATION


- I can apply the rules regarding order of operations to carry out calculations:
e.g. a) $3+5 \times 2$
b) $17-12 \div 4$
$=3+10$
$=17-3$
$=13$
$=14$

$$
\begin{aligned}
\text { c) } & 6 \times(9-5) \\
= & 6 \times 4 \\
= & 24
\end{aligned}
$$

d) $(21+7) \div(6-2)$
$=28 \div 4$
$=7$

$$
\text { e) } 20-\frac{1}{2} \text { of } 8 \quad \begin{array}{ll} 
& \text { f) } 3 \times 9+2^{2}-14 \\
=20-4 & =27+4-14 \\
=16 & =31-14 \\
& =17
\end{array}
$$



## ALGEBRA

- I can remove brackets from an expression:

$$
\begin{aligned}
& \text { e.g. a) } \begin{aligned}
& 6(2 x+3) \\
&= \text { b) } 2 d(3 e-5 f) \\
&=6 d e-10 d f
\end{aligned} \\
& \\
& \text { c) }-3(y-6) \\
&=-3 y+18
\end{aligned}
$$

- I can remove brackets and simplify:
e.g.

$$
\text { a) } \begin{aligned}
& 7(a+2)-9 \\
= & 7 a+14-9 \\
= & 7 a+5
\end{aligned}
$$

$$
\text { b) } 5-2(x+1)
$$

$$
=5-2 x-2
$$

$$
=3-2 x
$$

$$
\text { c) } \begin{aligned}
& 4(3 p+4 q)-7 q \\
= & 12 p+16 q-7 q
\end{aligned}
$$

$$
\text { d) } 2(x+3)+4(3 x+1)
$$

$$
=2 x+6+12 x+4
$$

$$
=14 x+10
$$

- I can remove pairs of brackets and simplify:


## e.g.

$$
\text { a) } \begin{aligned}
& (x+3)(x-2) \\
= & x^{2}-2 x+3 x-6 \\
= & x^{2}+x-6
\end{aligned}
$$

$$
\text { b) } \begin{aligned}
& (2 y-4)(3 y-1) \\
= & 6 y^{2}-2 y-12 y+4 \\
= & 6 y^{2}-14 y+4
\end{aligned}
$$

C) $(b+9)^{2}$

$$
\begin{aligned}
& =(b+9)(b+9) \\
& =b^{2}+9 b+9 b+81 \\
& =b^{2}+18 b+81
\end{aligned}
$$

- I am aware of the inequality symbols:

$$
\text { < less than } \quad>\text { greater than }
$$

$\leq$ less than or equal to. $\geq$ greater than or equal to.

- I can use in equality symbols to compare numbers e.g.
a) $5>2$
b) $-4<1$
c) $-3>-6$
d) $2+3>4$
- Algebra Exercise 1
- Algebra Exercise 2
- Algebra Exercise 3 Q1
- Algebra Exercise 3 Q2
$\bigcirc \bigcirc$ • Algebra Exercise 4
- Algebra Exercise 5



- I can convert hours and minutes into decimal hour:
e.g.
a) $30 \mathrm{mins}=30 \div 60=0.5 \mathrm{hrs}$
b) $15 \mathrm{mins}=15 \div 60=0.25 \mathrm{hrs}$
c) $45 \mathrm{mins}=45 \div 60=0.75 \mathrm{hrs}$
d) $20 \mathrm{mins}=20 \div 60=0.333 \ldots .$. hrs
e) $2 \mathrm{hrs} 15 \mathrm{mins}=15 \div 60+2=2.25 \mathrm{hrs}$
f) $5 \mathrm{hrs} 30 \mathrm{mins}=30 \div 60+5=5.5 \mathrm{hrs}$
- I can convert decimal hour into hours and minutes:
e.g.
a) $0.5 \mathrm{hrs}=0.5 \times 60=30 \mathrm{mins}$
b) $0.25 \mathrm{hrs}=0.25 \times 60=15 \mathrm{mins}$
c) $0.75 \mathrm{hrs}=0.75 \times 60=45 \mathrm{mins}$
d) $6.75 \mathrm{hrs}=6 \mathrm{hrs} 45 \mathrm{mins}$
e) $5.3333 \ldots$ hrs $=5 \mathrm{hrs} 20 \mathrm{mins}$


COURSE 2 BLOCK 6 Revision Exercises

## NUMBER REVISION

## Exercise 1

1. Complete the following calculations:
a) $23 \times 15$
b) $56 \times 34$
C) $12 \times 57$
d) $87 \times 32$
e) $73 \times 42$
f) $21 \times 85$
g) $44 \times 39$
h) $123 \times 19$
i) $764 \times 27$
j) $208 \times 14$
k) $735 \times 31$
I) $914 \times 58$
m) $413 \times 251$
n) $126 \times 352$
o) $514 \times 178$
p) $1584 \times 49$
2. A Ferris wheel completes a rotation in 53 seconds. How many seconds in all would it take to complete 13 rotations?
3. A small dairy farm produces 87 gallons of milk in a day. How many gallons of milk will it produce in 15 days?
4. The auditorium at Lion's school has 28 rows in all. If each row consists of 95 seats, calculate the total capacity of the auditorium?
5. Clara and her friends take an average of 13 hours to mow a community lawn over a weekend. How many hours on an average will they take to mow 14 such lawns?
6. It takes an hour for a car manufacturing company to assemble 11 cars. How many cars can the company assemble in 56 hours?

## Exercise 2

1. Complete the following calculations:
a) $312 \div 12$
b) $984 \div 24$
c) $448 \div 16$
d) $714 \div 21$
e) $918 \div 18$
f) $2241 \div 27$
g) $4416 \div 48$
h) $3300 \div 25$
i) $5427 \div 81$
j) $17784 \div 72$
k) $22104 \div 36$
I) $23240 \div 56$
2. Simon travelled a distance of 608 miles from Pittsburgh, PA to Birmingham, Alabama to visit his family on Easter. If the car used up 19 gallons of fuel in all for the trip, calculate the average miles covered per gallon.
3. Kris bought a pack of 150 glossy photo papers. If the pack costs $\$ 30$, how much does each photo paper cost?
4. A total of 108 students participated in the spring ballet recital at Dawn High. If 12 students were part of each ballet performance, how many ballet recitals took place in all?
5. Michelle baked 264 swiss rolls which were to be delivered for a party. If she plans to pack 24 in a box, how many boxes in all will she require to pack all the swiss rolls?
6. A warehouse receives 380 wooden boxes for storage. If 95 slots are available to store the boxes, how many wooden boxes will be stacked in each slot?

## Exercise 3

1. Complete the following calculations:
a) $5 \times 2+3$
b) $3+2 \times 5$
C) $20-6 \times 2$
d) $(20-6) \times 2$
e) $24 \div 4+6$
f) $24 \div(5+3)$
g) $8 \times 4-3 \times 5$
h) $6+4 \times 3^{2}$
i) $36 \div(4+2)-3$
j) $(6+5) \times 3 \times 4^{2}$
k) $\frac{8+4}{1+5}$
1) $\frac{9 \times 4}{6^{2}}$
m) $(-4)^{2}$
n) $\frac{5-6 \times 3}{1+24 \div 2}$

## ALGEBRA REVISION

## Exercise 1

1. Remove the brackets:
a) $5(x+3)$
b) $2(y-6)$
c) $6(4 b+2)$
d) $x(x-4)$
e) $9 a(2 b+a)$
f) $-3(p+5)$
g) $-7(2 w-4)$
h) $5 y(6 y+3 z)$

## Exercise 2

1. Remove the brackets and simplify:
a) $3(x+5)-12$
b) $6(2 y-4)+5 y$
c) $d(3 e+2 f)-d e$
d) $5+8(2 x+1)$
e) $3-2(y+5)$
f) $12-3(4 a-2)$
g) $2 x+3(x-4 y)$
h) $5(x+2)+2(x-1)$
i) $3(4 p-5)+2(p+8)$
j) $6(2 w+1)-3(w-7)$

## Exercise 3

1. Remove the brackets and simplify:
a) $(w+4)(w+2)$
b) $(y+1)(y+2)$
c) $(c+2)(c+5)$
d) $(a+5)(a-3)$
e) $(g+7)(g-4)$
f) $(s-3)(s+5)$
g) $(p-3)(p-2)$
h) $(y-4)(y-4)$
i) $(k-5)(k-6)$
2. Remove the brackets and simplify:
a) $(2 c+1)(c+2)$
b) $(x+1)(2 x+5)$
c) $(2 n+2)(n+5)$
d) $(p+2)(2 p-1)$
e) $(5 g-4)(g+1)$
f) $(a-3)(4 a+7)$
g) $(2 y-3)(y-1)$
h) $(5 k-2)(k-3)$
i) $(z-7)(6 z-5)$
j) $(2 c+1)(2 c+3)$
k) $(5 x+1)(2 x+5)$
1) $(3+2 n)(2 n+5)$
m) $(3 p+2)(2 p-1)$
n) $(5 g-4)(1+2 g)$
o) $(2 a-3)(4 a+7)$
p) $(2 y-3)(9 y-1)$
q) $(5 k-4)(2 k-1)$
r) $(2 z-9)(6 z-5)$

## Exercise 4

1. Remove the brackets and simplify:
a) $(x+6)^{2}$
b) $(y+3)^{2}$
c) $(c+5)^{2}$
d) $(p-3)^{2}$
e) $(x-7)^{2}$
f) $(a-4)^{2}$
g) $(2 b+1)^{2}$
h) $(3 w+4)^{2}$
i) $(8+5 g)^{2}$
j) $(4 f-2)^{2}$
k) $(7 x-9)^{2}$
l) $(6-2 y)^{2}$

## Exercise 5

Write < (less than) or > (greater than) in the blanks below to make each statement true:

1) -9
2) 7 $\qquad$ $-33$
3) 10 $\qquad$ $-25$
4) -14 $\qquad$ 2
5) 11 $\qquad$ $-11$
6) -18 $\qquad$ -22
7) -5 $\qquad$ $-4$
8) 0 $\qquad$ $-27$
9) -25 $\qquad$ $-15$
10) -7 $\qquad$ $\frac{3}{4}$
11) 8
$\qquad$ 8
12) $-3 \frac{1}{2}$
$\qquad$ $\frac{1}{2}$

## Exercise 6

Solve the following inequalities:
a) $5 x<25$
b) $7 y \geq 21$
c) $6 \mathrm{~b} \leq-12$
d) $8 e<-32$
e) $X+4>5$
f) $p+2>11$
g) $y-5<14$
h) $p-7<11$
i) $2 x+3<13$
j) $3 b+1 \leq 10$
k) $2 x-5 \geq 13$

1) $4 x+7 \geq 11$
m) $3 c-5 \geq 16$
n) $16>2 d+4$
o) $5 e+10<-5$
p) $6 g-7 \leq 3 g+5$
q) $4 a+12 \geq 2 a+18$
r) $3 a+2 \leq 17-2 a$
s) $40+3 k<28-k$
t) $7(2 x+3)>8 x+27$
u) $2(5 p-12) \geq 7 p-18$

## TIME REVISION

## Exercise 1

1. How many seconds are there in a minute?
2. How many seconds are there in 5 minutes?
3. How many seconds are there in 3 and a half minutes?
4. How many minutes are in a n hour?
5. How many minutes are there in 4 hours?
6. How many minutes are there in 2 and a quarter hours?
7. How many hours in 1 day?
8. How many hours in 3 days?
9. How many hours in one week?
10. How many days in one week?
11. How many days in 7 weeks?
12. How many weeks in a year?
13. How many weeks in 2 and a half years?
14. How many days in one year?
15. How many days in 6 years?

## Exercise 2

1. Read the clocks an state the time:

2. Fill out the missing clock based on the time of its pair:
a)

b)

c)


4:52
d)


## Exercise 3

1. Convert the following 12 hours times to 24 hours times:
a) 7 pm
b) 3 am
c) 2.45 am
d) 5.20 pm
e) 11.15 am
f) 6.52 pm
g) midday
h) 10.34 pm
i) 1.24 pm
j) 1.17 am
k) 3.09 pm
I) midnight
2. Convert the following 24 hour times to 12 hours time:
a) 1400 hrs
b) 0600 hrs
c) 1900 hrs
d) 1615 hrs
e) 1030 hrs
f) 1240 hrs
g) 2014 hrs
h) 0545hrs
i) 0025 hrs
j) 2355 hrs
k) 0312 hrs
I) 1705 hrs

## Exercise 4

1. How long from:
a) 2 am to 5 am
b) 6 pm to 11 pm
c) 1300 hrs to 1900 hrs
d) 1.30 pm to 4.15 pm
e) 0945 hrs to 1205 hrs
f) 0815 hrs to 1540 hrs
g) 6.13 pm to 11.38 pm
h) 0037 hrs to 0512 hrs
i) 8.15 pm to 3.55 am (the next day)
2. Gary was running late and missed his bus. He arrived that the bus stop at 8.10am. The next bus was at 8.33 am . How long will he have to wait?
3. James and Holly go to see a movie at the cinema. The movie starts at 6.30pm and lasts for 2 hours 25 mins . When does the movie end?
4. It takes 45 minuts to cook a lasagne. If I put it in the oven at 520pm, when will it be ready?
5. Paul travel To Edinburgh by train from Glasgow. The journey took 55 mins . He arrived in Edinburgh at 1405 hrs. At what time did he leave Glasgow?
6. Stephen started his jog along the canal at 0715hrs. He finished it at 0823hrs. How long was he jogging for?
7. 

| Opening Times for the London Eye |  |
| :--- | :--- |
| Monday | Closed |
| Tuesday to Friday | 10am to 7.30pm |
| Saturday | 8.30 am to 9.00 pm |
| Sunday | 11am to 4.30 pm |

a) How many hours is the London Eye open on Sundays?
b) If I arrived at the London Eye at 6.00pm on a Thursday, how long have I got before it closes?
c) Which day of the week is the London Eye open the longest?
d) Which day of the week is the London Eye open the shortest?
e) I get the train to London on Sunday. My train arrives at the station at 9.15. How long have I got to wait before the London Eye opens?
f) Which day has the latest closing time?
8.

| Here is part of a train timetable |  |  |  |
| :--- | :--- | :--- | :--- |
| Canterbury West | 10.30 | 11.15 | 11.45 |
| Ashford Int | 10.45 | 11.30 | 12.00 |
| St Pancras Int | 11.30 | - | 12.45 |
| Waterloo | 11.50 | 12.05 | 13.05 |

a) How long does the 10.30 train from Canterbury West take to travel to Waterloo?
b) Which train is the fastest to get from Canterbury West to Waterloo?
c) How many minutes later does the second train from Canterbury West leave than the first?
d) If I catch the 11.45 train from Canterbury West, how many stops are there until I reach Waterloo?
e) How many trains leave Ashford Int between 11.00 and 12.00?
f) If I get the 12.45 train at St Pancras Int, how long does it take to get to Waterloo?

## Exercise 5

1. Convert the following times into decimal hours:
a) 15 mins
b) 30 mins
c) 45 mins
d) 20 mins
e) 6 mins
f) 40 mins
g) 3 hrs 45 mins
h) 1 hrs 30 mins
i) 8 hrs 20 mins
j) 4 hrs 45 mins
k) 12 hrs 30 mins
I) 5 hrs 12 mins
2. Convert the following decimal hours to time:
a) 0.5 hrs
b) 0.25 hrs
c) 2.75 hrs
d) 2.5 hrs
e) 10.3333.....hrs
f) 9.25 hrs
g) $6.666666 \ldots . .$. hrs
h) 3.1 hrs
i) 0.75 hrs
k) 5.2 hrs
