

Name _____ Date _____

IB Math Studies Review Packet (Year One)

1. Find:

- a. the sum of 28 and 18
- b. the quotient of 425 and 17
- c. the difference between 246 and 81
- d. the product of 29 and 12

2. List all the factors of:

- a. 34
- b. 31
- c. 36
- d. 45

3. Find the greatest common factor of:

- a. 16 and 20
- b. 54 and 72
- c. 56 and 70

4. Find the lowest common multiple of:

- a. 6 and 10
- b. 7 and 8
- c. 3, 4, and 5

5. Find each product or quotient. Express your answer as a proper or improper fraction in simplified form:

a. $\frac{3}{4} \cdot \frac{6}{7}$

b. $\frac{3}{4} \div \frac{6}{7}$

c. $\frac{64}{200} \cdot -30$

d. $16 \cdot \frac{5}{8}$

e. $\frac{-12/28}{3/7}$

f. $\frac{a}{b} \cdot \frac{c}{d}$

g. $\frac{e}{f} \div \frac{g}{h}$

h. $2 \div \frac{1}{2}$

i. $\frac{5}{8} \div 4$

6. Find each sum or difference. Express your answer as a proper or improper fraction in simplified form:

a. $\frac{1}{2} + \frac{3}{5}$

b. $\frac{7}{11} - \frac{3}{4}$

c. $6 + \frac{4}{5}$

d. $-\frac{3}{10} - 3$

e. $2\frac{3}{5} + 4\frac{7}{10}$

f. $\frac{a}{b} + \frac{c}{d}$

g. $\frac{x}{y} - \frac{y}{x}$

h. $z - \frac{1}{y}$

i. $1 - \frac{1}{x}$

7. Write $2 \times 2 \times 5 \times 5 \times 5 \times 7$:

a. in exponent form

b. as a natural number

8. Round each of the following numbers to i) the nearest whole number, ii) 1 decimal place, and iii) the nearest hundredth.

a. 59.397

b. 999.997

c. 0.5678

9. Write each of the following as decimal numbers:

a. 4.6×10^{11}

b. 1.9×10^0

c. 3.2×10^{-3}

10. Write each of the following in scientific notation:

a. The diameter of the Earth is approximately 12.76 million meters.

b. A bacterium has a diameter of 0.000 000 42 cm.

11. Sheets of paper are 3.2×10^{-4} m in thickness. Use a calculator to find how many sheets are required to make a pile of paper 10 cm high.

12. Find the time difference between 10:35 am and 4:52 pm.

13. What is the time:

a. $4\frac{1}{2}$ hours after 11:20 pm?

b. $3\frac{1}{2}$ before 1:20 pm?

14. Evaluate:

a. 3^2

b. $(-5)^2$

c. -7^2

d. -2^3

e. $(-1)^4$

f. $(-1)^{13}$

g. $-(-2)^5$

h. -7.1^2

15. Simplify each of the following:

a. $12 + 27 \div 3$

b. $3(5 - 2)$

c. $(11 - 5) \times (3 + 4)$

d. $\frac{7+17}{3-1}$

e. $7^2 - 4 \times 5$

f. $[8 - (1 + 2)] \times 3$

g. $-6^2 \div 2 + 4$

h. $\frac{-4 \times 8}{24 \div 3}$

16. If $a = 3$, $b = -4$, and $c = 7$, find the value of:

a. $b^2 - c^2$

b. $\frac{3a+4b}{c(b-1)}$

c. $\sqrt{b(a-c)}$

17. If $p = -3$, $q = 4$, and $r = -2$, find the value of:

a. p^2q

b. $\frac{3p-2r}{q}$

c. $\sqrt{\frac{25q}{(p+r)^2}}$

18. It is 35°C in a town in Mexico. Use the formula $F = \frac{9}{5}C + 32$ to calculate the temperature in degrees Fahrenheit.

19. Use the formula $C = \frac{5}{9}(F - 32)$ to convert 84°F to degrees Celsius.

20. Solve each of the following for x :

a. $x - 14 = 6$

b. $2x - 9 = 5(x + 1)$

c. $\frac{6-5x}{4x+3} = -2$

d. $\frac{2}{x} = \frac{8}{7}$

e. $\frac{x+6}{-4} = \frac{x-1}{3}$

f. $\frac{4x-9}{2} = 8$

21. Solve each of the following for y :

a. $4x - 3y = 28$

b. $cy + d = k$

c. $\frac{p}{y} + 3 = q$

22. Solve each of the following systems for x :

a.
$$\begin{cases} -2x + 5y = -3 \\ 3x + 4y = 16 \end{cases}$$

b.
$$\begin{cases} x - 8y = 1 \\ 6x - 2y = -17 \end{cases}$$