

Part 1

Name: _____

1. Insert $<$, $>$ or $=$ to make each of the following statements true.
 - a. $\frac{3}{8}$ 0.5
 - b. $4\frac{5}{7}$ 4.8
 - c. 0.0909 0.9009
 - d. $12 \times 3 + 9$ 36
2. Complete, using index notation:
 - a. $9 \times 9 \times 9 = 9^{\square}$
 - b. $3^8 \div 3^5 = 3^{\square}$
 - c. $2^2 \times 2^6 = 2^{\square}$
 - d. $5 \times 5 \times 4 \times 5 \times 5 = 4^{\square} \times 5^{\square}$
 - e. $(3^2)^5 = 3^{\square}$
3. Simplify, leaving your answers in index form:
 - a. $8^7 \times 8^3 =$ _____
 - b. $2 \times 2^3 \times 2^2 =$ _____
 - c. $\frac{10 \times 10 \times 10 \times 10}{10^5} =$ _____
 - d. $(5^2)^4 =$ _____
 - e. $\frac{6^8}{6^4} =$ _____
4. Evaluate:
 - a. $16 \div \frac{2}{3} =$ _____
 - b. $2\frac{1}{4} \times 4\frac{3}{4} =$ _____
 - c. $9 \times (12 - 3^3) =$ _____
 - d. $3^4 =$ _____
 - e. $\sqrt[3]{-64} =$ _____
5. Evaluate, correct to 2 decimal places:
 - a. $2.8^4 - (12 \times 3.4 \div (5.4 + 3.2 \times 0.234^2)) =$

 - b. $\frac{15^2}{24 - 17} =$ _____

- c. $\frac{5.6^3}{\sqrt{7.08 + 34.7 \times 2.01}} =$ _____
6. Convert 357 minutes into hours and minutes.

7. Write 12.6708 hours correct to the nearest:
 - a. second _____
 - b. minute _____
8. Find $8 \text{ h } 2 \text{ min } 45 \text{ s} - 3 \text{ h } 57 \text{ min } 54 \text{ s}$.
9. A phone operator answers 231 calls on Monday, 56 calls on Tuesday, 149 calls on Wednesday and a total of 987 for the week.
 - a. How many calls were made on Thursday and Friday? _____
 - b. If each phone call lasted 156 seconds, how long did the operator spend on the phone on Thursday and Friday?

10. A frog named Bertha jumps 4 metres on her first jump, 2 m on her second, 1 metre on her third jump, and continues to jump $\frac{1}{2}$ the distance of the previous jump each time. Use your calculator to find the distance that Bertha is trying to cover.

11. A company decides to share its \$8.04 million dollar profit equally between its 1567 employees. How much does each employee receive, correct to the nearest dollar? _____
12. The square root of a whole number lies between 8.6 and 8.7. What could the number be? _____
13. Give 3 decimals that, when rounded to 3 decimal places, become 0.982.

PART 1

14. Bryce had a bag of 135 marbles. He gave $\frac{2}{5}$ of the to his brother and divided the rest between himself and two friends. How many of the marbles did Bryce retain?
-

15. Find two numbers that have a product of $32 \cdot 64$ and a sum of $18 \cdot 32$.
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WORKING SPACE

Topic Test: Numbers and Percentages

PART 2

Name: _____

1. Express as a percentage:

- a. 0.6 _____
- b. $\frac{1}{2}$ _____
- c. $\frac{3}{4}$ _____
- d. $\frac{1}{3}$ _____
- e. 0.125 _____

2. Answer each of the following as either true (T) or false (F).

- a. $70\% > \frac{3}{4}$ _____
- b. $\frac{3}{200} = 1.5\%$ _____
- c. $0.05 = \frac{1}{20}$ _____
- d. $\frac{2}{5} < 40\%$ _____
- e. $x\% \text{ of } y = y\% \text{ of } x$ _____

3. Write the following in ascending order:

$\frac{1}{4}$, 40%, 1.4, $12\frac{1}{2}\%$, $\frac{3}{10}$

4. Give a percentage that lies between $\frac{1}{4}$ and $\frac{1}{5}$.

5. Find:

- a. 12% of 4000 m = _____
- b. 3% of \$560 = _____
- c. $6\frac{1}{4}\%$ of 8.9 kg = _____
- d. 101% of 5 mL = _____
- e. $7\frac{1}{2}\%$ of \$9.46 = _____
- 6. a. Increase \$25 by 10% = _____
- b. Decrease \$48 by 5% = _____
- c. Increase \$107 by $12\frac{1}{2}\%$ = _____
- d. Increase \$3 by 250% = _____

7. Decrease \$40 by 6% and then increase the result by 6%.

8. A fruitshop owner buys a box of 24 mangoes for \$9. At what price should he sell each mango if he wishes to make a 30% profit?

9. A shop offers a discount of 20% off the cost of a pair of shoes worth \$89.95. Find the sale price of the shoes.

10. In May, a pie cost \$1.80 at the school canteen. On 1 June, the price of a pie went up to \$2.40. Calculate the percentage increase in the price of a pie.

11. a. Carly earns 3% commission on the value of all sales. Find her commission for a week in which her sales total \$54 680.

b. What would her sales need to be in order for her commission to be over \$750 for any given week?

12. Michael earns \$500 per week plus $1\frac{1}{2}\%$ commission on the value of sales over \$100 000. How much does Michael earn in a week in which his sales total \$150 000?

13. Calculate the simple interest earned on \$7000 invested at $6\frac{1}{4}\%$ p.a. for:

- a. 4 years _____
- b. 30 months _____

14. What is the flat interest rate needed for \$5000 to double in 10 years?

Part 2

15. If 12% of $x = y$, what is the value of:
- a. $x\%$ of 12 ? _____
 - b. 24% of x ? _____
 - c. 150% of x ? _____
16. A car is sold for a profit of 20% . If the car was sold for $\$30\,000$, how much profit was made on the car?

WORKING SPACE

Part 1

Name: SOLUTIONS

1. Insert <, > or = to make each of the following statements true.

- a. $\frac{3}{8} < 0.5$ ✓
- b. $4\frac{5}{7} < 4.8$ ✓
- c. $0.0909 < 0.9009$ ✓
- d. $12 \times 3 + 9 < 36$ ✓

2. Complete, using index notation:

- a. $9 \times 9 \times 9 = 9^3$ ✓
- b. $3^8 \div 3^5 = 3^3$ ✓
- c. $2^2 \times 2^6 = 2^8$ ✓
- d. $5 \times 5 \times 4 \times 5 \times 5 = 4^1 \times 5^4$ ✓
- e. $(3^2)^3 = 3^6$ ✓

3. Simplify, leaving your answers in index form:

- a. $8^7 \times 8^3 = 8^{10}$ ✓
- b. $2 \times 2^3 \times 2^2 = 2^6$ ✓
- c. $\frac{10 \times 10 \times 10 \times 10}{10^5} = \frac{1}{10}$ ✓
- d. $(5^2)^4 = 5^8$ ✓
- e. $\frac{6^4 \times 3}{6^4} = \frac{6^3}{6} = 6^2$ ✓

4. Evaluate:

- a. $16 \div \frac{2}{3} = 24$ ✓
- b. $2\frac{1}{4} \times 4\frac{3}{4} = 10.6875$ ✓ $10\frac{11}{16}$
- c. $9 \times (12 - 3^3) = -735$ ✓
- d. $3^4 = 81$ ✓
- e. $\sqrt[3]{64} = 4$ ✓

5. Evaluate, correct to 2 decimal places:

- a. $2.8^4 - (12 \times 3.4 \div (5.4 + 3.2 \times 0.234^2)) = 54.16$ ✓
- b. $\frac{15^2}{24 - 17} = 32.14$ ✓

$2.8^4 - (12 \times 3.4 \div (5.58))$
 $= 2.8^4 - (40.8 \div 5.58)$
 $= 2.8^4 - 7.31 =$
 $5^2 \times 5^2 \times 5^2 \times 5^2$

c. $\frac{5.6^3}{\sqrt{7.08 + 34.7 \times 2.01}} = 20.04$ ✓

6. Convert 357 minutes into hours and minutes.
5 hours and 57 minutes ✓

7. Write 12.6708 hours correct to the nearest:

- a. second 12h 40min 15sec
- b. minute 12h 40min

8. Find 8 h 2 min 45s - 3 h 57 min 54 s. 4hrs 4mins 51secs ✓

9. A phone operator answers 231 calls on Monday, 56 calls on Tuesday, 149 calls on Wednesday and a total of 987 for the week.

a. How many calls were made on Thursday and Friday? 551 calls ✓

b. If each phone call lasted 156 seconds, how long did the operator spend on the phone on Thursday and Friday?
23hrs 52mins 36secs ✓

10. A frog named Bertha jumps 4 metres on her first jump, 2 m on her second, 1 metre on her third jump, and continues to jump $\frac{1}{2}$ the distance of the previous jump each time. Use your calculator to find the distance that Bertha is trying to cover.
7.875 8m ✓

11. A company decides to share its \$8.04 million dollar profit equally between its 1567 employees. How much does each employee receive, correct to the nearest dollar? \$5130.821 ✓ 5131

12. The square root of a whole number lies between 8.6 and 8.7. What could the number be? 74.275 ✓

13. Give 3 decimals that, when rounded to 3 decimal places, become 0.982.

- 0.9821 ✓
- 0.9819 ✓
- 0.9824 ✓

$2.8^4 - (12 \times 3.4 \div (5.58))$
 $= 2.8^4 - (40.8 \div 5.58)$
 $= 2.8^4 - 7.31 =$
 $5^2 \times 5^2 \times 5^2 \times 5^2$
244mins 51secs
245mins 7.75
85956 85
23hours 52mins 14 32 mins 36s

Part 1

14. Bryce had a bag of 135 marbles. He gave $\frac{2}{5}$ of the to his brother and divided the rest between himself and two friends. How many of the marbles did Bryce retain? ✓
27 marbles ✓

15. Find two numbers that have a product of 32.64 and a sum of 18.32. ✓
16.32, 2 ✓

WORKING SPACE

SHOW WORKING

means $\frac{2}{5} \times 135 = 54$
 $135 - 54 = 81$
 or $\frac{3}{5} \times 135 = 81$
 $81 \div 3 = 27$
 Not

16.32

54 - brother

$\frac{27}{3} = 9$

9.16

31

Topic Test: Numbers and Percentages

Part 2

Name: _____

- 1. Express as a percentage:
 - a. 0.6 60% ✓
 - b. $\frac{1}{2}$ 50% ✓
 - c. $\frac{3}{4}$ 75% ✓
 - d. $\frac{1}{3}$ 33.33% ✓ *X NO MUST WEIR 33 1/3% or 33.3%*
 - e. 0.125 12.5% ✓
- 2. Answer each of the following as either true (T) or false (F).
 - a. $70\% > \frac{3}{4}$ FV ✓
 - b. $\frac{3}{200} = 1.5\%$ F ✓
 - c. $0.05 = \frac{1}{20}$ TV ✓
 - d. $\frac{2}{5} < 40\%$ FV (=) ✓
 - e. $x\% \text{ of } y = y\% \text{ of } x$ TV ✓
- 3. Write the following in ascending order:

$\frac{1}{4}, 40\%, 1.4, 12\frac{1}{2}\%, \frac{3}{10}$

$12\frac{1}{2}\%, \frac{3}{10}, 40\%, 1.4$ ✓
- 4. Give a percentage that lies between $\frac{1}{4}$ and $\frac{1}{5}$.

23% ✓
- 5. Find:
 - a. 12% of 4000 m = 480 ✓
 - b. 3% of \$560 = \$16.80 ✓
 - c. $6\frac{1}{4}\%$ of 8.9 kg = 0.556 kg ✓
 - d. 101% of 5 mL = 5.05 ✓
 - e. $7\frac{1}{2}\%$ of \$9.46 = 71¢ ✓
- 6.
 - a. Increase \$25 by 10% = \$27.50 ✓
 - b. Decrease \$48 by 5% = \$45.60 ✓
 - c. Increase \$107 by $12\frac{1}{2}\%$ = \$120.38 ✓
 - d. Increase \$3 by 250% = 10.5 ✓

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- 7. Decrease \$40 by 6% and then increase the result by 6%.

\$39.86 ✓
- 8. A fruitshop owner buys a box of 24 mangoes for \$9. At what price should he sell each mango if he wishes to make a 30% profit?

\$1.17 ✓ *50¢ each*
- 9. A shop offers a discount of 20% off the cost of a pair of shoes worth \$89.95. Find the sale price of the shoes.

\$71.96 ✓
- 10. In May, a pie cost \$1.80 at the school canteen. On 1 June, the price of a pie went up to \$2.40. Calculate the percentage increase in the price of a pie.

33 1/3% ✓
- 11.
 - a. Carly earns 3% commission on the value of all sales. Find her commission for a week in which her sales total \$54 680.

\$1640.4 ✓
 - b. What would her sales need to be in order for her commission to be over \$750 for any given week?

\$25000 ✓
- 12. Michael earns \$500 per week plus $1\frac{1}{2}\%$ commission on the value of sales over \$100 000. How much does Michael earn in a week in which his sales total \$150 000?

\$1250 ✓
- 13. Calculate the simple interest earned on \$7000 invested at $6\frac{1}{4}\%$ p.a. for:
 - a. 4 years 1750 ✓
 - b. 30 months 1093.75 ✓
- 14. What is the flat interest rate needed for \$5000 to double in 10 years?

10% ✓ *2*

53/68

Part 2

WORKING SPACE

- 15. If 12% of $x = y$, what is the value of:
 - a. $x\%$ of 12? 28
 - b. 24% of x ? 28
 - c. 150% of x ? 28 1/2
- 16. A car is sold for a profit of 20%. If the car was sold for \$30 000, how much profit was made on the car?

\$25000

