

1. Describe each of the following with an integer.

- a) 22° C above zero.
 - b) 9° C below zero.
 - c) 250 m below sea level.
 - d) a profit of \$1 350.
 - e) 7 under par in golf.
 - f) a loss of 8 points in a stock.
2. State the next larger integers.
- a) -7
 - b) 13
 - c) -5
3. Which integer is greater?
- a) 3 or 5
 - b) -3 or -5
 - c) -1 or -8

4. Evaluate.

- a) $(+5) + (+7)$
- b) $(-8) + (+3)$
- c) $(-7) - (-3)$
- d) $(-5) - (-5)$
- e) $(+9) - (-3) + (-5)$
- f) $(-3)(-8)$
- g) $(-5)(7)$
- h) $\frac{-12}{-4}$
- i) $(-3)(-5)(2)$
- j) $\frac{(-3)(6)(-2)}{(-9)(2)}$

5. Complete the table.

x	x + 3
3	
2	
1	
0	
-1	
-2	

m	-7 + m
3	
2	
1	
0	
-1	
-2	

6. The temperature outside is 5° C. What is the temperature after a rise of 3° C followed by a drop of 9° C?

7. The temperature in Mississauga at midnight was -4° C. The table shows the hourly temperature changes. Complete the table.

Time	Temperature Change (°C)	New Temperature (°C)
1:00 A.M.	-5	
2:00 A.M.	+3	
3:00 A.M.	-2	
4:00 A.M.	+1	
5:00 A.M.	-6	
6:00 A.M.	+2	

8. Kelly has a \$58 overdraft at the bank. She makes a \$123 deposit. How much is in her account?

9. The melting point of oxygen is -218° C. The boiling point of oxygen is 35° C higher. What is the boiling point of oxygen?

10. Find the missing value.

- a) $(+9) - () = (+6)$
- b) $() - (+3) = (+2)$
- c) $(-2) - () = (-7)$
- d) $() - (-3) = (-2)$
- e) $(+5)()(-2) = -30$
- f) $(+3)()(+4) = -36$

11. An airplane has an altitude of 5800 m. It then climbs at 400 m/min for 16 minutes.

- a) What is its change in altitude?
- b) What is its final altitude?

12. A jet fighter had an altitude of 10 200 m. It descends 8 450 m in 5 minutes. Calculate its rate of change per minute.

13. Add brackets to make the following statements true.

- a) $-3 + 4^2 \times 5 = 5$
- b) $-1 - 3 - 8 + 4 = -3$
- c) $3^2 + 4 \times 2 - 5 = -3$
- d) $6^2 - 20 + 2 + 6 = 2$

Knowledge (/ 25)

1. Short answer. (/ 4)

- a) Which integer is greater, -5 or -7? _____
- b) Provide a real-life example of a negative integer.
- c) Find the missing value in the empty brackets. $() - (-3) = 1$
- d) How far apart on the integer number line are 1 and -1? _____

2. Evaluate. (a&b 2 each, c&d 3 each) (/ 10)

- a) $(10 - 2) \times 3$
- b) $16 + 4 - 5 \times 1$
- c) $5 + 2[10 - (3 \times 2)]$
- d) $\frac{6(3) - 2^4}{3^2 - 7}$

2. Evaluate fully. (/ 8) 1 each

- a) $(-8) + 2$
- b) $4 - (-3)$
- c) $(+5) + (-8) + (-3)$
- d) $(-7)(8)$
- e) $-16 + -4$
- f) $4 - 7$
- g) $(-5)(7)(-3)$
- h) $(-2) - (-10)$

3. Evaluate if $x=3$ and $y=2$. (/ 3)

$3x - 2y + xy$

3. The overhead projector in the poster at this side of the room has a retail price of \$ 450.00. It is on sale for two-thirds OFF. (5 marks)

A) Calculate the amount of discount.

b) Calculate the sale price.

c) Calculate the purchase price using only one calculation.

4. A RIPZONE ski jacket has a retail price of \$ 375.00 is on sale for \$250.00. Calculate the discount rate. (3 marks)

5. If the price of a ticket to see Jay Leno increased from \$25 to \$30 due to his popularity on South Park. What would the increase be as a percentage of the original price? (2 marks)

THINKING (/ 15)

1. Evaluate fully. (3 marks each)

a) $20 - 2[(2-6)+7]$

b) $5(-3+5) - 2(3-4)$

c) $\frac{(16-20)(8-12)}{2(1-2)}$

d) Evaluate if $x=-4$ and $y=-1$.

$$2x^2 - 2xy + y^3$$

e) $4(-3)+2[4(-1-5)-5(-6+2)]+3(-1)$

2. Basic percent problems. (/6) 2 each

a) Change to decimal

i) $27\% =$ ii) $8.75\% =$

b) Calculate to the nearest tenth.

34% of 79

c) Express 2 out of 7 as a percentage to the nearest tenth.

APPLICATION /15 marks

Show a full solution and final statement for each problem. Round-off all answers to the nearest tenth except dollar amounts.

1. 8 out of 35 students scored very high on a recent test. What percentage of the class did not score high? (3 marks)

2. A fraction has a denominator 40. What would the numerator have to be to yield a percent of 30%? (2marks)

1 Find each sum

(a) $0.6 + 0.5 + 0.9$
 (b) $7.4 + 3.2 + 5.8$
 (c) $6.84 + 0.25 + 9.01$

(d) $0.7 + 35.68 + 7.5$
 (e) $19.03 + 6.7 + 9.54 + 3.11$
 (f) $942.32 + 705.31 + 415.44 + 986.33$

2 Subtract each of the following.

(a) $6.9 - 4.1$
 (b) $30.8 - 5.4$
 (c) $6.8 - 4.1$
 (d) $16.45 - 12.10$
 (e) $96.04 - 6.32$
 (f) $85.32 - 8.15$

3 Express each percent as a fraction in lowest terms.

- a) 27% b) 36% c) 60% d) 28%
 e) 48% f) 16% g) 85% h) 19%
4. Find:
 a) 20% of 20 b) 20% of 40 c) 20% of 60
 d) 20% of 50 e) 40% of 50 f) 60% of 50

5. Express each fraction as a percent.

- a) $\frac{1}{5}$ b) $\frac{2}{5}$ c) $\frac{3}{5}$

6. Express each fraction or decimal as a percent.

- a) 0.8 b) 0.25 c) $\frac{1}{8}$ d) $\frac{1}{3}$
 e) 2.5 f) $\frac{8}{3}$ g) 1.6 h) 2.4

7. Express each percent as a decimal.

- a) 24% b) 39% c) 57.4% d) 3%
 e) 11.5% f) 1.6% g) 0.9% h) 137%
 i) 375% j) 375.8% k) 0.1% l) 2.03%

8. Express each percent as a fraction in lowest terms.

- a) 15% b) 30% c) 45%

For each quotient, the digits are given in the calculator display. Place the decimal point correctly.

Quotient	Digits
(a) $577.7 \div 5.3$	10900
(b) $524.8 \div 4.1$	12800
(c) $10.08 \div 2.8$	36000
(d) $7.68 \div 1.6$	48000
(e) $5.778 \div 3.21$	18000

Estimate which answer is correct, A or B.

	A	B
(a) $29.16 \div 12$	24.3	2.43
(b) $54.30 \div 15$	3.62	36.2
(c) $63.18 \div 1.3$	4.86	48.6
(d) $10.07 \div 2.65$	3.8	38

5. Add or subtract.

- a) $\frac{1}{5} + \frac{1}{2}$
 b) $\frac{2}{5} + \frac{1}{2}$
 c) $\frac{3}{5} + \frac{1}{2}$
 d) $\frac{1}{5} - \frac{1}{10}$
 e) $\frac{1}{5} - \frac{1}{10}$
 f) $\frac{2}{5} - \frac{1}{10}$
 g) $\frac{3}{5} - \frac{1}{10}$

6. Multiply or divide.

- a) $\frac{1}{2} \times \frac{3}{4}$
 b) $\frac{2}{3} \times \frac{1}{5}$
 c) $\frac{5}{6} \times \frac{2}{3}$
 d) $\frac{2}{3} \div 2$
 e) $\frac{1}{9} \div \frac{1}{3}$
 f) $\frac{4}{5} \div 2$
 g) $\frac{1}{9} \div \frac{1}{3}$

- a) $\frac{4}{5} + \frac{1}{2}$
 b) $\frac{4}{4} - \frac{1}{10}$

- c) $\frac{4}{5} \times \frac{4}{3}$
 d) $\frac{5}{11} \div \frac{2}{3}$

NUMERACY REVIEW

MPM 1 DO

10. The regular price of a bicycle is \$227.50. It is on sale for 15% off. What is the price change? What is the sale price?

11. Skis are on sale for 45% off. A pair of skis regularly sells for \$180. What is the price after the discount?

12. Economists predict that food costs will change over the coming year. They estimate an increase of 11.7%. Last year, one family spent \$8400 on food. How much might the family expect to spend in the coming year?

13. Estimation A calculator is on sale for \$9.98. This price reflects a 25% discount. What is its regular price?

14. The managers of a recording company expect sales income to change this year. They hope for a 60% increase over last year's sales of \$2 500 000. What is the company's projected income for this year?

15. In April, 800 000 people were unemployed. In May this figure decreased by 0.16%. How many fewer people were unemployed in May?

Find each sum

- (a) $0.6 + 0.5 + 0.9 = 2.0$
 (b) $7.4 + 3.2 + 5.8 = 16.4$
 (c) $6.84 + 0.25 + 9.01 = 16.10$
 (d) $0.7 + 35.68 + 7.5 = 43.88$
 (e) $19.03 + 6.7 + 9.54 + 3.11 = 38.38$
 (f) $942.32 + 705.31 + 415.44 + 986.33 = 3049.40$

2 Subtract each of the following.

- (a) $6.9 - 4.1 = 2.8$
 (b) $30.8 - 5.4 = 25.4$
 (c) $6.8 - 4.1 = 2.7$
 (d) $16.45 - 12.10 = 4.35$
 (e) $96.04 - 6.32 = 89.62$
 (f) $85.32 - 8.15 = 77.17$

1. Express each percent as a fraction in lowest terms.

- a) $27\% = \frac{27}{100}$
 b) $36\% = \frac{9}{25}$
 c) $60\% = \frac{3}{5}$
 d) $28\% = \frac{7}{25}$
 e) $19\% = \frac{19}{100}$
 f) $16\% = \frac{4}{25}$
 g) $85\% = \frac{17}{20}$
 h) $25\% = \frac{1}{4}$
 i) $20\% = \frac{1}{5}$
 j) $40\% = \frac{2}{5}$
 k) $20\% = \frac{1}{5}$
 l) $40\% = \frac{2}{5}$
 m) $60\% = \frac{3}{5}$
 n) $80\% = \frac{4}{5}$

1. Express each fraction as a percent.

- a) $\frac{1}{5} = 20\%$
 b) $\frac{2}{3} = 66\frac{2}{3}\%$
 c) $\frac{3}{5} = 60\%$
 d) $\frac{4}{5} = 80\%$
 e) $\frac{5}{6} = 83\frac{1}{3}\%$
 f) $\frac{1}{3} = 33\frac{1}{3}\%$
 g) $\frac{2}{3} = 66\frac{2}{3}\%$
 h) $\frac{8}{9} = 88\frac{8}{9}\%$
 i) $1.6 = 160\%$
 j) $2.4 = 240\%$
 k) $\frac{17}{25} = 68\%$
 l) $0.025 = 2.5\%$
 m) $0.001 = 0.1\%$
 n) $0.0001 = 0.01\%$
 o) $0.00001 = 0.0001\%$

Express each percent as a decimal.

- a) $24\% = 0.24$
 b) $39\% = 0.39$
 c) $57.4\% = 0.574$
 d) $3\% = 0.03$
 e) $5.8\% = 0.058$
 f) $11.5\% = 0.115$
 g) $1.6\% = 0.016$
 h) $0.9\% = 0.009$
 i) $137\% = 1.37$
 j) $264\% = 2.64$
 k) $375\% = 3.75$
 l) $375.8\% = 3.758$
 m) $0.1\% = 0.001$
 n) $2.03\% = 0.0203$
 o) $0.25\% = 0.0025$

Express each percent as a fraction in lowest terms.

- a) $15\% = \frac{3}{20}$
 b) $30\% = \frac{3}{10}$
 c) $45\% = \frac{9}{20}$
 d) $60\% = \frac{3}{5}$
 e) $75\% = \frac{3}{4}$
 f) $80\% = \frac{4}{5}$
 g) $90\% = \frac{9}{10}$
 h) $95\% = \frac{19}{20}$
 i) $99\% = \frac{99}{100}$

3a For each quotient, the digits are given in the calculator display. Place the decimal point correctly.

Quotient	Digits
(a) $577.7 \div 5.3$	10900
(b) $524.8 \div 4.1$	12800
(c) $10.08 \div 2.8$	36000
(d) $7.68 \div 1.6$	48000
(e) $5.778 \div 3.21$	18000

4. Estimate which answer is correct, A or B.

- (a) $29.16 \div 12$ A 24.3 B 2.43
 (b) $54.30 \div 15$ A 3.62 B 36.2
 (c) $63.18 \div 1.3$ A 4.86 B 48.6
 (d) $10.07 \div 2.65$ A 3.8 B 38

5. Add or subtract.

- a) $\frac{1}{5} + \frac{1}{2} = \frac{7}{10}$
 b) $\frac{2}{3} + \frac{1}{2} = \frac{7}{6}$
 c) $\frac{3}{5} + \frac{1}{2} = \frac{11}{10}$
 d) $\frac{1}{5} - \frac{1}{10} = \frac{1}{10}$
 e) $\frac{2}{3} - \frac{1}{5} = \frac{7}{15}$
 f) $\frac{2}{5} - \frac{1}{10} = \frac{3}{10}$
 g) $\frac{3}{5} - \frac{1}{10} = \frac{5}{10} = \frac{1}{2}$

6. Multiply or divide.

- a) $\frac{1}{2} \times \frac{3}{4} = \frac{3}{8}$
 b) $\frac{2}{3} \times \frac{1}{5} = \frac{2}{15}$
 c) $\frac{5}{6} \times \frac{2}{3} = \frac{10}{18} = \frac{5}{9}$
 d) $\frac{2}{3} \div 2 = \frac{1}{3}$
 e) $\frac{4}{5} \div 2 = \frac{2}{5}$
 f) $\frac{1}{9} \div \frac{1}{3} = \frac{1}{3}$
 g) $\frac{2}{3} \div \frac{2}{5} = \frac{5}{3}$

- d) $\frac{4}{5} + \frac{1}{2} = \frac{13}{10}$
 e) $\frac{4}{5} + \frac{1}{2} = \frac{13}{10}$
 f) $\frac{4}{5} + \frac{1}{2} = \frac{13}{10}$
 g) $\frac{4}{5} + \frac{1}{2} = \frac{13}{10}$
 h) $\frac{4}{5} + \frac{1}{2} = \frac{13}{10}$
 i) $\frac{4}{5} + \frac{1}{2} = \frac{13}{10}$
 j) $\frac{4}{5} + \frac{1}{2} = \frac{13}{10}$
 k) $\frac{4}{5} + \frac{1}{2} = \frac{13}{10}$
 l) $\frac{4}{5} + \frac{1}{2} = \frac{13}{10}$
 m) $\frac{4}{5} + \frac{1}{2} = \frac{13}{10}$
 n) $\frac{4}{5} + \frac{1}{2} = \frac{13}{10}$
 o) $\frac{4}{5} + \frac{1}{2} = \frac{13}{10}$
 p) $\frac{4}{5} + \frac{1}{2} = \frac{13}{10}$
 q) $\frac{4}{5} + \frac{1}{2} = \frac{13}{10}$
 r) $\frac{4}{5} + \frac{1}{2} = \frac{13}{10}$
 s) $\frac{4}{5} + \frac{1}{2} = \frac{13}{10}$
 t) $\frac{4}{5} + \frac{1}{2} = \frac{13}{10}$
 u) $\frac{4}{5} + \frac{1}{2} = \frac{13}{10}$
 v) $\frac{4}{5} + \frac{1}{2} = \frac{13}{10}$
 w) $\frac{4}{5} + \frac{1}{2} = \frac{13}{10}$
 x) $\frac{4}{5} + \frac{1}{2} = \frac{13}{10}$
 y) $\frac{4}{5} + \frac{1}{2} = \frac{13}{10}$
 z) $\frac{4}{5} + \frac{1}{2} = \frac{13}{10}$

NUMERACY REVIEW

10. The regular price of a bicycle is \$227.50. It is on sale for 15% off. What is the price change? What is the sale price? $\$34.13$ $\$193.37$

11. Skis are on sale for 45% off. A pair of skis regularly sells for \$180. What is the price after the discount? $\$99$

12. Economists predict that food costs will change over the coming year. They estimate an increase of 11.7%. Last year, one family spent \$8400 on food. How much might the family expect to spend in the coming year? 9382.80

13. Estimation A calculator is on sale for \$9.98. This price reflects a 25% discount. What is its regular price? $\$12$

14. The managers of a recording company expect sales income to change this year. They hope for a 60% increase over last year's sales of \$2,500,000. What is the company's projected income for this year? $4,000,000$

15. In April, 800,000 people were unemployed. In May this figure decreased by 0.16%. How many fewer people were unemployed in May? 1280

The overhead projector in the poster at this side of the room has a retail price of \$450.00. It is on sale for two-thirds OFF. (5 marks)

A) Calculate the amount of discount.

\$ 300

b) Calculate the sale price.

\$ 150

c) Calculate the purchase price using only one calculation.

69.50

A RIPZONE ski jacket has a retail price of \$375.00 is on sale for \$250.00. Calculate the discount rate. (3 marks)

33.3%

If the price of a ticket to see Jay Leno increased from \$25 to \$30 due to his popularity on South Park. What would the increase be as a percentage of the original price? (2 marks)

$\frac{5}{25} = 20\%$

THINKING (/ 15)

1. Evaluate fully. (3 marks each)

a) $20 - 2[(2-6)+7] = 14$

b) $5(-3+5) - 2(3-4) = 10 + 2 = 12$

c) $\frac{(16-20)(8-12)}{2(1-2)} = \frac{-4(-4)}{-2} = -8$

d) Evaluate if $x=-4$ and $y=-1$.

$$2x^2 - 2xy + y^3 = 2(16) - 2(4)(-1) + 1 = 32 - 9 = 23$$

e) $4(-3) + 2[4(-1-5) - 5(-6+2)] + 3(-1) = -12 + 2[-24 + 20] - 3 = -12 - 8 - 3 = -23$

2. Basic percent problems. (/ 6) 2 each

a) Change to decimal

i) $27\% = 0.27$

ii) $8.75\% = 0.0875$

b) Calculate to the nearest tenth.

34% of $79 = 26.9$

c) Express 2 out of 7 as a percentage to the nearest tenth.

28.6%

APPLICATION / 15 marks

Show a full solution and final statement for each problem. Round-off all answers to the nearest tenth except dollar amounts.

1. 8 out of 35 students scored very high on a recent test. What percentage of the class did not score high? (3 marks)

$\frac{27}{35} = 77\%$

2. A fraction has a denominator 40. What would the numerator have to be to yield a percent of 30%? (2marks)

$\frac{12}{40} = 0.3$

1. Describe each of the following with an integer.
- a) 22° C above zero. $+22$
 - b) 9° C below zero. -9
 - c) 250 m below sea level. -250
 - d) a profit of \$1350. $+1350$
 - e) 7 under par in golf. -7
 - f) a loss of 8 points in a stock. -8

2. State the next larger integers.
- a) -7 -6
 - b) 13 14
 - c) -5 -4
3. Which integer is greater?
- a) 3 or 5 5
 - b) -3 or -5 -3
 - c) -1 or -8 -1

4. Evaluate.
- a) $(+5) + (+7)$ 12
 - b) $(-8) + (+3)$ -5
 - c) $(-7) - (-3)$ -4
 - d) $(-5) - (-5)$ 0
 - e) $(+9) - (-3) + (-5)$ 7
 - f) $(-3) - (-8)$ 5
 - g) $(-5)(7)$ -35
 - h) $\frac{-12}{-4}$ 3
 - i) $(-3)(-5)(2)$ 30
 - j) $\frac{(-3)(6)(-2)}{(-9)(2)}$ -2

x	x+3
3	6
2	5
1	4
0	3
-1	2
-2	1

m	-7+m
3	-4
2	-5
1	-6
0	-7
-1	-8
-2	-9

5. Complete the table.
6. The temperature outside is 5° C. What is the temperature after a rise of 3° C followed by a drop of 9° C?

8°C then -1°C

7. The temperature in Mississauga at midnight was -4° C. The table shows the hourly temperature changes. Complete the table.

Time	Temperature Change (°C)	New Temperature (°C)
1:00 A.M.	-5	-9
2:00 A.M.	+3	-6
3:00 A.M.	-2	-8
4:00 A.M.	+1	-7
5:00 A.M.	-6	-13
6:00 A.M.	+2	-11

8. Kelly has a \$58 overdraft at the bank. She makes a \$123 deposit. How much is in her account? $\$65$
9. The melting point of oxygen is -218° C. The boiling point of oxygen is 35° C higher. What is the boiling point of oxygen? -183°C
10. Find the missing value.
- a) $(+9) - (-3) = (+6)$
 - b) $(5) - (+3) = (+2)$
 - c) $(-2) - (-5) = (-7)$
 - d) $(-5) - (-3) = (-2)$
 - e) $(+5)(3) = 15$
 - f) $(+3)(-3)(+4) = -36$
11. An airplane has an altitude of 5800 m. It then climbs at 400 m/min for 16 minutes.
- a) What is its change in altitude? 6400m
 - b) What is its final altitude? $12,200\text{m}$
12. A jet fighter had an altitude of 10200 m. It descends 8450 m in 5 minutes. Calculate its rate of change per minute. 1690m/min

13. Add brackets to make the following statements true.
- a) $(-3+4) \times 5 = 5$
 - b) $(-1-3-8) \div 4 = -3$
 - c) $3^2 + 4 \times 2 - 3 = -3$
 - d) $(6^2 - 2) \div (2 + 6) = 2$

Knowledge (/ 25)

1. Short answer. (/ 4)

- a) Which integer is greater, -5 or -7? -5
- b) Provide a real-life example of a negative integer. -5°C
- c) Find the missing value in the empty brackets. $(-)(-)(-)=1$ -2
- d) How far apart on the integer number line are 1 and -1? 2units

2. Evaluate. (add 2 each, c&d 3 each) (/ 10)

- a) $(10-2) \times 3 = 24$
- b) $16+4-5 \times 1 = -1$
- c) $5+2[10-(3 \times 2)] = 13$
- d) $\frac{6(3)-2^4}{3^2-7} = 1$

2. Evaluate fully. (/ 8) 1 each

- a) $(-8)+2 = -6$
- b) $4-(-3) = 7$
- c) $(+5)+(-8)+(-3) = -6$
- d) $(-7)(8) = -56$
- e) $-16 \div -4 = 4$
- f) $4-7 = -3$
- g) $(-5)(7)(-3) = 105$
- h) $(-2)-(-10) = 8$

3. Evaluate if $x=3$ and $y=-2$. (/ 3)

$3x-2y+xy = 7$