

MATH 10 UNIT 3 JANUARY REVIEW ANSWERS

NUMBER TYPES:

Part A True or False:

1. True
2. True
3. False
4. True
5. False
6. False
7. True
8. True
9. true
10. True

Number	Number Set(s)
$\sqrt{2}$	Irrational, real
$\frac{8}{9}$	Rational, Real
-3	Integers, Rational, Real
0	Whole, Integers, Rational, Real

2. Domain = {1, 2, 3, 4, 5, 7}
Range = {0, 2, 3, 4, 6}
3. a) i) (-1,4) (0, 3) (1, 2) (2, 1) (3, 0)
ii) Domain = {-1, 0, 1, 2, 3}
iii) Range = { 0, 1, 2, 3, 4}
- b) i) (1,1) (2,2) (3, 3) (4, 4)
ii) Domain = { 1, 2, 3, 4}
iv) Range = { 1, 2, 3, 4}
- c) i) (0,1) (1, 0) (2, -1) (3, -2) (4, -3)
ii) Domain = {0, 1, 2, 3, 4}
iii) Range = { 1,0,-1,-2,-3}
- d) i) (1, 3) (1, 4) (1, 5) (1, 6) (2, 3) (2, 4) (2, 5) (3, 3) (3, 4) (4, 3)
ii) Domain = {1, 2, 3, 4}
iii) Range = { 3, 4, 5, 6}

SLOPE AND EQUATION OF A LINE ($y = mx + b$)

1. $m = 2/3$

$m = 0$

$m = 4/2 = 2$

$m = \text{undefined}$

2. a) $m = 7/2$

c) $m = 5/2$

b) $m = -6/4 = -3/2$

d) $m = 0/-2 = 0$

3. a) $m = -3, b = 2$

c) $m = 1/2, b = 2$

e) $m = -2, b = 5$

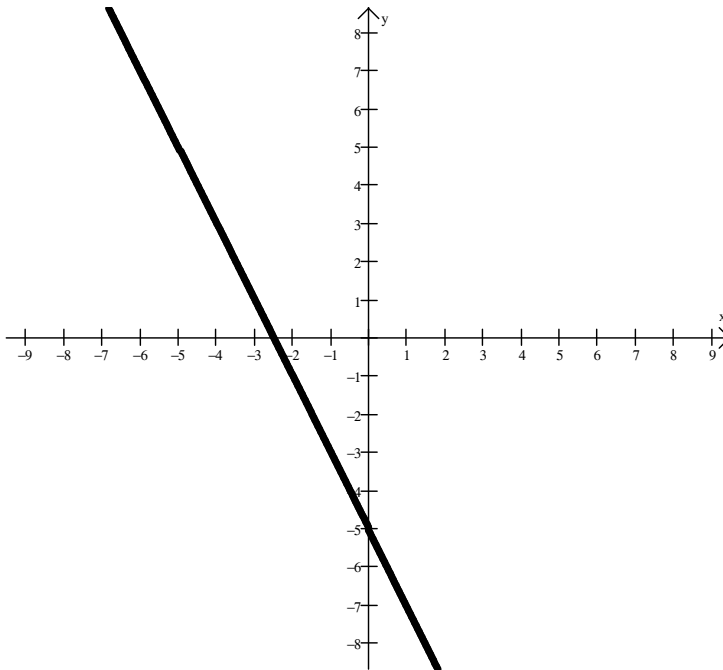
b) $m = -5, b = -6$

d) $m = -1, b = 0$

f) $m = 1/2, b = -1/6$

4. a) $y = 2x + 1$

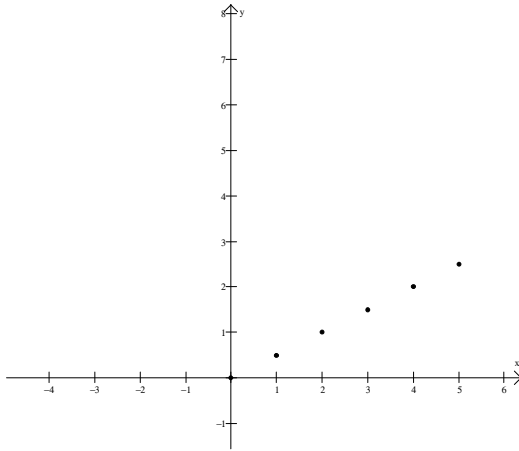
b) $y = 1/2 x - 1$



5.

SECTION 3.1

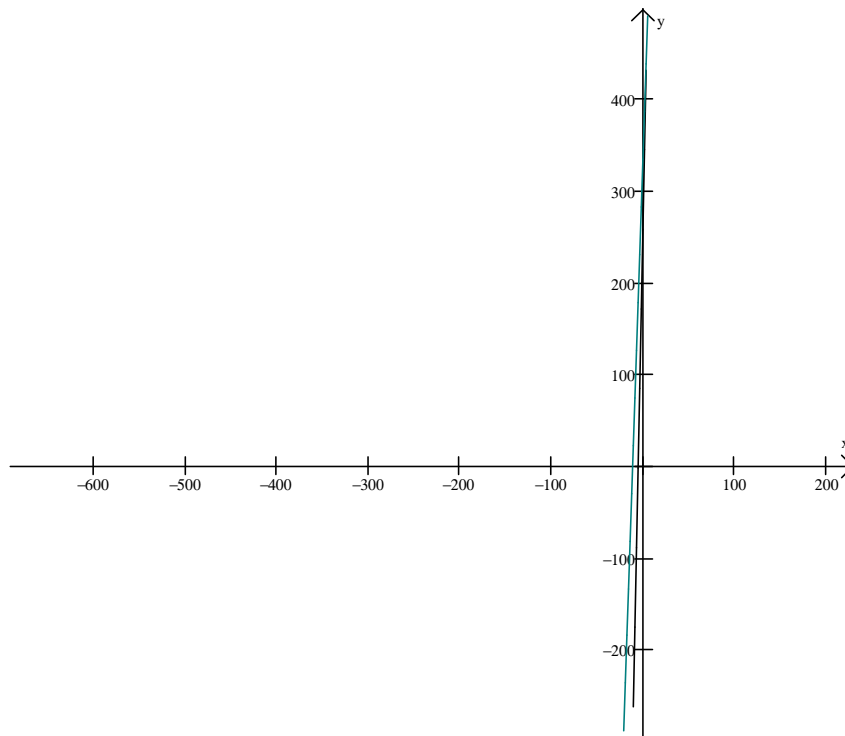
1.a) The longer Fran drives the more gas she consumes.



- b) As time increases, the amount of gas consumed increases.
- c) As time increases, the amount of gas consumed increases.
- d) In 6h the motorcycles would consume 3L of gas. I found my answer by looking at the table of values and finding the pattern. The pattern is that for every hour Fran drives she consumes 0.5L more of gas.
- e) Domain = {0, 1, 2, 3, 4, 5}
 Range = {0, 0.5, 1, 1.5, 2, 2.5}
- f) The graph is displaying continuous data as gas is consumed constantly over a period of time.

INTERSECTION POINTS

1. a) $x = \text{hours}$
 lawyer 1 = $200 + 50x$ lawyer 2 = $300 + 30x$



- b)
 c) 5 hours

- d) cost = \$450
 e) $200 + 50x = 300 + 30x$
 $50x - 30x = 300 - 200$
 $20x = 100$
 $X = 5$

CHANGING WORDS TO EQUATIONS

1. $2x + 8 = 30$
2. $\frac{x}{6} = 10$
3. $3x - 4 = 41$
4. $x + (x + 1) = 21$
5. $x - 5 = 13$
6. $x - 10 = 15$
7. $2x - 7 = 43$
8. $7x = 44 + 5$
9. $x + 2x = 9$
10. $\frac{5x}{4} = 12$
11. $3x - 20$
12. $\frac{1}{3}x + 10$
13. $37 + x = 53$ $x = 16$
14. $2x + 27 = 73$ $x = 23$
15. $\frac{1}{2}x = 16$ $x = 32$
16. $3x - 36 = 2x$ $x = 36$
17. $19 + x = 2x + 7$ $x = 12$
18. $2x + 16 = 40$ $x = 12$
19. $5x = 45$ $x = 9$
20. $x + (x + 7) = 33$ $x = 13$

Word Problems

1. cost = $20 + 2x$
 $48 = 20 + 2x$
 $28 = 2x$
 $14 = x$ You could get 14 hours of internet use for \$48
2. cost = $10 + 2.5x$
 cost = $10 + 2.5(14)$
 cost = $10 + 35$
 cost = 45 Company C costs \$35 for 14 hours.
3. Company C
4. a) option 1: $40 = 10 + 3x$ option2: $40 = 30 + 1x$

$$30 = 3x$$

$$10 = x$$

$$10 = 1x$$

Both companies allow for the same hours of use.

b) option 1: $70 = 10 + 3x$ option 2: $70 = 30 + 1x$

$$60 = 3x$$

$$40 = 1x$$

$$20 = x$$

Option 2 allows for the most hours of use.

5. $x = \text{minutes}$ cost = $2 + 0.60x$

$$\text{Cost} = 2 + 0.6(23)$$

$$\text{Cost} = 2 + 1.38$$

$$\text{Cost} = 3.38$$

b) She should join the points as this is displaying continuous data.

c) $17 = 2 + 0.6x$

$$15 = 0.6x$$

$$25 = x$$

The drive home was 25 minutes.

POINT – SLOPE FORM AND PARALLEL/PERPENDICULAR SLOPE

1. $y - 2 = 2(x - 4)$

$$y - 2 = 2x - 8$$

$$y - 2 + 2 = 2x - 8 + 2$$

$$y = 2x - 6$$

2. $y - (-6) = 1/3(x - 1)$

$$Y + 6 = 1/3x - 1/3$$

$$Y = 1/3x - 1/3 - 6$$

$$Y = 1/3x - 19/3$$

3. $m = 5/-6$

$$y - 1 = -5/6(x - 5)$$

$$y - 1 = -5/6x + 25/6$$

$$y = -5/6x + 35/6 + 1$$

$$Y = -5/6x + 41/6$$

4. $y \text{ intercept} = 4$

$$M = -6$$

$$(0, 4)$$

$$y = -6x + 4$$

5. a) $m = -3$

6. a) $m = -1/4$

b) $m = -2$

b) $m = 7/3$

c) $m = -3$

c) $m = -5/2$

EXPONENTS

1. a) 27

d) 16

g) $1/9$

b) $1/3$

e) $1/16$

h) 16

c) 1

f) 5

i) $4^{-2} = \frac{1}{16}$

2. a) x^3

d) $\frac{k^3}{m^3}$

g) $2^3 x^3 y^3 = 8x^3 y^3$

b) k^9

e) m^{10}

h) $x^4 y^4$

c) $a^5 b^5$

f) $3^4 a^4 = 81a^4$

i) 2^7

3. a) x^4 b) $x^6y^{-2} = \frac{x^6}{y^2}$ c) $\frac{10^6}{10^3} = 10^3$
d) $\frac{s^4t^2}{s^{-3}t^2} = s^7$ e) $-x^{-2}y^0 = \frac{-1}{x^2}$ f) $\frac{-a^2b^{-2}}{a^{-3}b^4} = -a^5b^{-6} = \frac{-a^2}{b^6}$

COMBINING LIKE TERMS

1. a) $5a - 2b$ b) $m - 2n$ c) $5p + q$
d) $-y^2 - 6y - 9$ e) $3x + 2y$ f) $10x - 10y$ g) $-10a + 2b$
2. a) $x - y$ b) $7x - 12y + 5z$ c) $-a - 10b + 5c$
3. a) 10 b) 18 c) 37

MULTIPLYING AND DIVIDING POLYNOMIALS

1. a) $-6xy$ b) $9x^2$ c) $8x^2y^2$ d) $-6a^2b$ e) $-12x^4$ f) $6x^3y^3$
g) $4x^2y^3$ h) $3x$ i) $-5y$ j) $-4y$ k) $4x$ l) $5m - y$

FOIL

1) $x^2 - 9$ 2) $y^2 - 100$ 3) $16x^2 - 9$ 4) $b^2 - a^2$ 5) $x^2 - 16x + 64$
6) $a^2 + 10a + 25$ 7) $36x^2 + 12x + 1$ 8) $16x^2 - 8xy + y^2$
9) $2x^2 - 17xy - 9y^2$ 10) $4x^2 + 26x - 14$ 11) $3a^3 - 8a^2b + 5ab^2 - 2b^3$
12) $6x^3 - 10x^2 + 7x - 4$ 13) $-x^2 - 9x + 52$ 14) $10a^2 - 6a$
16) $-7y^2 + y + 138$

COMMON FACTORING

a) $y^2(y^3 - y^2 + y + 1)$ b) $9(4x^5 - y^3)$ c) $4x(2w - 3)$
d) $5(2w - 3)$ e) $9rs^2(2rs - 1 - 3r^2)$ f) $(3m + 2)(x + y)$
g) $(5w + 3t)(x - 2)$ h) $(m + n)(5y + t)$ j) $(x - 4)(4mn - 1)$
i) $(m + 3)(9x - 2)$