

DAWSON COLLEGE
Mathematics Department

FINAL EXAMINATION
Remedial Activities of Sec IV Mathematics - (201-016-50)

Fall, 2014

Instructors : O.Diaconescu, N. Sabetghadam

1. [5 marks] Multiply and simplify.

$$(2x - 3)(x^2 + 5) - x(x - 3)(x + 3)$$

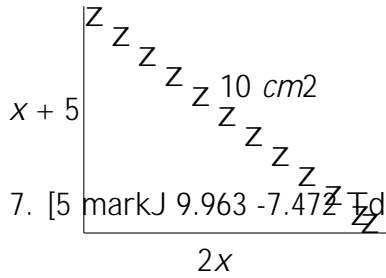
2. [5 marks] Factor completely.

12

(e) $4^{(2x-3)} = \frac{1}{2}$

7. [5 marks] If a man has \$330 in five and ten dollar bills, then how many of each does he have if he has 41 bills in total?

8. [5 marks] Find x in the right-angled triangle below.



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(a) What was the population of the city in 1995?

(b) What was the population in 2010?

(c) In which year did the population reach 35800?

13. [6 marks] The height h in meter of a ball in a soccer game, t seconds after it is kicked is given by $h(t) = 3.5t^2 + 17.5t$.

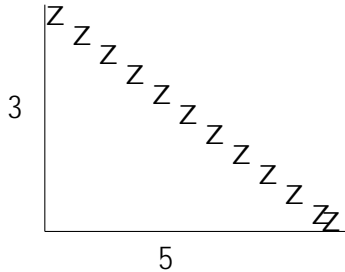
(a) When does the ball reach its maximum height?

(b) What is the maximum height?

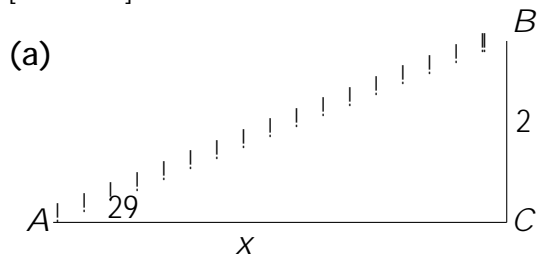
(c) After how many seconds the ball hits the ground?

14. [5 marks] Find the y intercept, x intercepts and the vertex, and sketch the graph of the parabola given by: $y = x^2 + 4x + 3$

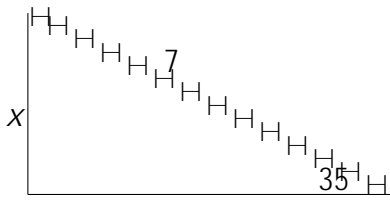
15. [5 marks] Find the six trigonometric functions of θ in the following right-angled triangle.



16. [4 marks] Find x .



(b)



Final Answers

1. $x^3 - 3x^2 + 19x - 15$

2. $4x^2(3x - 1)(x^2 + 1)$

3. $\frac{(x+4)}{x}$

4. $3 - 2\sqrt{2}$

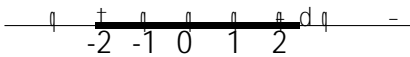
5. $k = 1 + \frac{E - 2A}{P}$

6. (a) $x = 4$, (b) $x = 2 - \sqrt{5}$, (c) $x = 2$; $x = 1$, (d) $x = 3$, (e) $x = \frac{13}{8}$.

7. 25 (\$10 bills), and 16 (\$5 bills).

8. $x = 3$

9. $-2 < x < \frac{5}{2}$, $[-2; 2.5)$



10. (a) $f(-4) = 3$, (b) $g(h + 1) = 2h^2 + 4h + 5$ (c) $x = 1$; $x = -1$, (d) $\text{Domain}(f) = (-1; \frac{1}{2}]$

11. (a) $d = \sqrt[3]{45} = 3\sqrt[3]{5}$, (b) $y = -2x + 2$, (c) $y = -\frac{1}{2}x + \frac{1}{2}$

12. (a) $y(0) = 11200$, (b) $y(15) = 41950$, (c) in 2007

13. (a) $t = 2.5$, (b) $h(2.5) = 21.88$, (c) $t = 5$ seconds.

14. The vertex $(-2; -1)$, The y-intercept $(0; 3)$, The x-intercepts $(-1; 0)$; $(3; 0)$

15. $\sin = \frac{3}{34}$; $\cos = \frac{5}{34}$; $\tan = \frac{3}{5}$; $\csc = \frac{34}{3}$; $\sec = \frac{34}{5}$; $\cot = \frac{5}{3}$

16. (a) $x = 3.608$, (b) $x = 4.015$